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A REVISION OF THE PHILIPPINE LORANTHACEÆ

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TWO PLATES

A revision of the Philippine Loranthaceæ has already twice been given, though in a more concise form, by Merrill.[1] The present revision is, in many respects, only an extension of Merrill's. New are the keys for all genera and species; the complete descriptions for all species, usually after all materials available; the distribution lists as complete as possible; and many criticisms of the nomenclature. In many points, such as the synonymy of older Philippine literature, I have had to follow Merrill blindly; also it deserves to be mentioned that the careful labeling of the material in the Bureau of Science herbarium and the clear indication of good types are Merrill's work.

I am, however, also greatly indebted to Dr. Eduardo Quisumbing, curator of the Philippine National Herbarium, Bureau of Science, for his kindness in twice sending me the Philippine Loranthaceæ—once to Buitenzorg and once to Groningen. Also to the directors of other herbaria, who kindly sent me Philippine Loranthaceæ to be taken up in my revision, I feel very thankful. The herbaria from which material was received are here listed:

B; Herbarium of the Botanic Gardens, Buitenzorg, Java.
Be; Herbarium of the Botanic Garden and Museum, Berlin-Dahlem.
Br; Herbarium of the Botanic Garden of the University, Breslau.
G; Herbarium of the Botanical Laboratory of the University, Groningen.

[1] Philip. Journ. Sci. § C 4 (1909) 129–153; Enum. Philip. Fl. Pl. 2 (1923) 100–114.

L; The State Herbarium, Leiden.
M; Philippine National Herbarium, Bureau of Science, Manila.
NY; Herbarium of the New York Botanical Garden, New York.
S; Herbarium of the Botanic Gardens, Singapore.
U; Herbarium of the Botanical Laboratory of the University, Utrecht.
UC; Herbarium of the University of California, Berkeley.

As a result of my revision I can mention for the Philippines seventeen genera with eighty-six species of Loranthaceæ, eleven of which are new to science. Only seventeen of these species are also found outside the Philippines, so that sixty-nine must be regarded as endemic.

To keep the revision as concise as possible, I have refrained from mentioning vernacular names and, except in a few cases, the host trees, as these are of no use, unless the author is well acquainted with Philippine languages and with the Philippine flora. For these I must refer to Merrill's revision or to further literature. For more-extensive synonymy of some species I have taken the liberty of referring to my own revision of the Loranthaceæ of the Netherlands Indies.

Key to the genera of the Philippine Loranthaceæ.

1. Leafless ..... 2.
   Leafy ..... 3.
2. Internodes of each stem flattened in one plane; no bracts between the flowers ..... XV. *Korthalsella.*
   Flattenings of the internodes alternating; bracts below the flowers. ..... XVII. *Viscum.*
3. Perianth 2 mm long or less, calyxlike; flowers unisexual ..... 4.
   Perianth longer than 3 mm, corollalike; flowers hermaphrodite ..... 6.
4. Young parts tomentose ..... XVI. *Notothixos.*
   Young parts glabrous ..... 5.
5. Flowers in spikes ..... XIV. *Ginalloa.*
   Flowers single or crowded in the leaf axils ..... XVII. *Viscum.*
6. Anthers dorsifixed, versatile; corolla choripetalous. ..... XIII. *Phrygilanthus.*
   Anthers basifixed ..... 7.
7. Flowers single or in sessile few-flowered umbels ..... VII. *Amyema.*
   Flowers in capitate inflorescences ..... 8.
   Flowers in simple peduncled umbels ..... 10.
   Flowers in simple racemes or spikes ..... 13.
   Flowers in umbels of triads (or rarely dyads) ..... 16.
   Flowers in racemes or spikes of triads (or rarely dyads). ..... I. *Amylotheca.*
8. Involucre not composed of bracts, cup-shaped ..... III. *Cyne.*
   Involucre composed of six small bracts placed in one whorl. ..... VIII. *Dicymanthes.*
   Involucre composed of decussate, imbricate bracts, rarely the innermost pair connate to a calyptra ..... 9.

9. Flowers more than twelve, placed on a flat receptacle and surrounded by the involucral bracts, at least the outer flowers arranged in triads. II. *Lepeostegeres.*
   Flowers four or less in number, in two decussate pairs. VI. *Lepidaria.*
   Flowers in triads in the axils of the bracts, each flower surrounded by three smaller bracts ..... IV. *Thaumasianthes.*
10. Corolla choripetalous ..... VII. *Amyema.*
    Corolla sympetalous ..... 11.
11. Below each flower three (or by concrescence two) bracts; flower 6-merous ..... V. *Macrosolen.*
    Below each flower a single bract; flower 4-merous ..... 12.
12. Calyx tube and fruit attenuate towards the base ..... XI. *Scurrula.*
    Calyx tube and fruit not attenuate towards the base ..... XII. *Taxillus.*
13. Corolla choripetalous ..... IX. *Helixanthera.*
    Corolla sympetalous ..... 14.
14. Below each flower three (or by concrescence two) bracts; flower 6-merous ..... V. *Macrosolen.*
    Below each flower a single bract; flower 4- or 5-merous ..... 15.
15. Calyx tube and fruit not attenuate towards the base; fruit ovate; flower 5-merous ..... X. *Dendrophthoe.*
    Calyx tube and fruit attenuate towards the base; fruit clavate; flower 4-merous ..... XI. *Scurrula.*
16. Style breaking off at the base, leaving no beak or nipple on the fruit. VII. *Amyema.*
    Style breaking off somewhat above the base, leaving a beak or nipple on the fruit; flower 6-merous, sympetalous; whole plant glabrous. I. *Amylotheca.*

I. Genus AMYLOTHECA Van Tieghem, emended

Amylotheca VAN TIEGH., Bull Soc. Bot. Fr. 41 (1894) 261; 42 (1895) 444; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; 11 (1931) 238; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 35.

Treubella VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 265; 42 (1895) 86, 435; non Pierre (1890).

Aciella VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 435; 42 (1895) 86, 445.

Decaisnina VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 435.

Arculus VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 444.

Treubania VAN TIEGH., in Morot, Journ. de Bot. 11 (1897) 324.

Inflorescentia plerumque racemus, rarius spica vel umbella, triadum (raro dyadum), floribus singula bractea suffultis. Flores plerumque 6-meres raro 5-meres, choripetali vel magis minusve sympetali, petalis vel laciniis corollae erectis supra insertiones staminum reflexis vel rarius recurvis. Antherae basifixae, angustae, acutae vel obtusae, loculis 4 vulgo continuis

rarious locellatis. Stylus plerumque supra basin articulatus, fructui rostrum breve relinquens, raro basi articulatus.

Amylotheca is distributed all over the Philippines. Outside the Philippines it is spread in a southern, and especially in a southeastern, direction to Australia and New Caledonia.

The Philippine species of *Amylotheca* show more different forms than those of the eastern parts of the Malay Archipelago. *Amylotheca viridis* and *A. pentagona* together form an endemic section, restricted to Luzon; *Amylotheca ovatifolia, A. saccata,* and *A. Aherniana* constitute a second section, to which also *A. duthieana,* from the Malay Peninsula and the Lingga Archipelago, and *A. borneana,* from Borneo, belong; *Amylotheca crassilimba* unites characters of the already mentioned sections with those of the following one. Therefore, it is *A. crassilimba* that makes it impossible to split *Amylotheca* into smaller genera. The last section contains all remaining species of the Philippines and the further Malay Archipelago and might be called *Amylotheca* sensu strictiore; among these the Philippine species have much shorter flowers, on the average, than those of the Netherlands Indies.

Key to the Philippine species of Amylotheca.

1. Corolla thick, more than 5 mm wide in the lower part, blackish in herbarium specimens, 30 to 45 mm long; anthers obtuse; lateral flowers of the triads pedicellate; twigs and leaves crowded..... 2.
   Flowers not like this ..... 3.
2. All triads placed in an umbel or few of them placed somewhat lower on the peduncle; pedicels of the triads 12 to 17 mm long, those of the lateral flowers 4 to 8 mm long; corolla and style 30 to 47 mm long; twigs terete or obtusely angled..... 16. *A. viridis.*
   All triads racemosely arranged; pedicels of the triads 8 to 10 mm long, those of the lateral flowers nearly 3 mm long; corolla and style 40 to 45 mm long; twigs with nearly five sharp angles. 17. *A. pentagona.*
3. Inflorescence with an involucre of decussate scales at the base of the peduncle; lateral flowers of the triads pedicelled; anthers obtuse; style leaving no nipple on the fruit..... 4.
   Inflorescence without involucre of scales at the base of the peduncle; lateral flowers of the triads sessile or shortly pedicelled; anthers acute; style usually leaving a nipple on the fruit..... 7.
4. Corolla strongly dilated in the lower portion..... 5.
   Corolla hardly or not at all dilated in the lower portion..... 6.
5. Style 23 to 32 mm long; triads in each inflorescence nearly 6 to 12. 15. *A. Aherniana.*
   Style 14 to 18 mm long; triads in each inflorescence nearly 12 to 32. 14. *A. saccata.*

6. Corolla 5-merous, like the style 20 to 23 mm long; axis of the inflorescence 5 to 10 mm long, bearing six to eight triads; twigs slender ..... 13. *A. ovatifolia.*
   Corolla 6-merous; corolla and style 22 to 23 mm long; axis of the inflorescence 30 to 65 mm long, bearing six to eighteenth triads; twigs and leaves thick and coarse; bracts usually falling off before anthesis ..... 12. *A. crassilimba.*
7. Young twigs quadrangular; inflorescence densely but very shortly puberulent; style nearly 20 mm long; anthers nearly sessile. 10. *A. confertiflora.*
   Young twigs terete, internodes more or less flattened towards the top, in extreme cases double-edged ..... 8.
8. Corolla and style 21 to 32 mm long ..... 9.
   Corolla and style 12 to 21 mm long ..... 14.
9. The two sides of the leaf distinctly different ..... 10.
   The two sides of the leaf hardly different; corolla and style 26 to 30 mm long; free part of the filament 3 to 7 mm long. 9. *A. formicaria.*
10. Free portion of the filament 0 to 1.5 mm long ..... 11.
    Free portion of the filament 1.5 to 4 mm long ..... 12.
11. Leaves elliptic-oblong, thick, long-petioled, of the nerves only the midrib distinct; bracts falling off before anthesis. Compare with *A. crassilimba*, usually having an involucre of scales at the base of the inflorescence and usually having shortly pedicelled lateral flowers of the triads.
    Leaves distinctly nerved on both sides, the lamina convex between the strongest lateral nerves ..... 8. *A. miniata.*
12. Leaves exactly elliptical, thick, with indistinct lateral nerves. 11. *A. revoluta.*
    Leaves more irregular-shaped, with distinct lateral nerves ..... 13.
13. Leaves sessile, deeply cordate; stem dichotomous at nearly all nodes; corolla thickish, nearly 33 mm long ..... 7. *A. amplexicaulis.*
    Leaves more or less petioled, not or rarely slightly cordate; corolla not thickish, 23 to 30 mm long ..... 6. *A. boholensis.*
14. Corolla and style 15 to 21 mm long ..... 1. *A. Cumingii.*
    Corolla and style 12 to 15 mm long ..... 15.
15. Triads sessile ..... 2. *A. apodotrias.*
    Triads pedicelled ..... 16.
16. Flowers 5-merous; leaves roundish-cordate, equal on both sides, thick. 5. *A. Hopeae.*
    Flowers 6-merous ..... 17.
17. Leaves slightly cordate, sessile; free portion of the filament 1 to 2 mm long ..... 4. *A. Merrillii.*
    Leaves petioled, ovate-lanceolate; anthers sessile ..... 3. *A. tenuis.*

1. AMYLOTHECA CUMINGII Van Tieghem.

Amylotheca Cumingii VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 264; 42 (1895) 444; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; 11 (1931) 251; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 36; MERR., Enum. Philip. Fl. Pl. 2 (1923) 110.

Elytranthe Cumingii ENGLER, in Engler and Prantl., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 126.

Loranthus mindanaensis MERR., Philip. Journ. Sci. 1 Suppl. (1906) 186; § C 4 (1909) 142; ELMER, Leafl. Philip. Bot. 3 (1911) 1070; MERR., Enum. Philip. Fl. Pl. 2 (1923) 107 excl. specim.

Loranthus secundiflorus MERR., Philip. Journ. Sci. 1 Suppl. (1906) 187, § C 4 (1909) 141–142; Enum. Philip. Fl. Pl. 2 (1923) 109.

Loranthus subalternifolius MERR., Philip. Journ. Sci. 1 Suppl. (1906) 188, § C 4 (1909) 141; Enum. Philip. Fl. Pl. 2 (1923) 110.

Loranthus fragilis MERR., Philip. Journ. Sci. § C 9 (1914) 278 non Sprague (1910); LECOMTE, Not. Syst. 3 (1914) 175.

Loranthus secundiflorus Merr. var. *bolsteri* ELMER, Leafl. Philip. Bot. 3 (1911) 1067; MERR., Enum. Philip. Fl. Pl. 2 (1923) 109.

Loranthus aurantiacus ELMER, Leafl. Philip. Bot. 6 (1913) 1967; MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.

Loranthus palawanensis MERR., Philip. Journ. Sci. § C 13 (1918) 279; Enum. Philip. Fl. Pl. 2 (1923) 107.

Amylotheca palawanensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 302; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Omnino glabra, vel inflorescentiis et floribus juvenilibus papillose puberulis. Ramuli subgraciles, internodiis junioribus teretibus apicem versus applanatis vel raro basi tantum teretibus apicem versus magis applanatis ancipitibus, vetustioribus nodis incrassatis, folia adulta ferentibus basi 1 ad 3.5 (raro ad 5) mm crassis, 2 ad 14 cm longis. Folia opposita vel subopposita; petiolus longitudine variabili et in formis praecipue angustifoliis difficile a lamina distinguendus, basi incrassatus, subtus valde supra leviter convexus, 0 ad 15 mm longus, 1 ad 3 mm latus; lamina valde variabilis, saepe irregularis, faciebus paulum diversis, utrinque opaca, plerumque tenuiter coriacea raro crassa, 5 ad 15 cm longa, 1.5 ad 9 cm lata, obovata vel elliptica vel oblonga vel ovata vel ovato-lanceolata, basi plerumque in petiolum attenuata, rarius rotundata vel leviter cordata magis abrupte contracta subsessilis, margine integerrima, apice rotundata vel obtusa, vel vario modo irregularis, raro subacuta vel acuminata, penninervis, costa facie inferiore magis prominente quam superiore, nervis lateralibus et venis facie superiore leviter prominentibus, inferiore indistinctis. Inflorescentiae racemi triadum floribus omnibus sessilibus, singulae vel gregatim in axillis foliorum et in nodis defoliatis; axis teres, ad insertiones florum paulum incrassatus, 15 ad 70 mm longus, supra basin 1 ad 1.5 mm crassus, supra 10 ad 20 mm, inferiora nuda 3 ad 7 paria triadum ferens; pedicelli triadum teretes, 1 ad 4 mm longi, 0.5

mm crassi; bracteae rotundato-ovatae, apice rotundatae vel magis acutae, 1 ad 1.5 mm vel si acutae ed 2 mm longae, concavae. Calicis tubus subcylindricus, 2 ad 3.5 mm longus, 1 ad 1.25 mm latus; limbus plerumque late patens, 0.5 ad 1 mm longus, crenatus vel leviter lobatus. Corolla crassiuscula, statu alabastri adulti 15 ad 21 mm longa, supra partem basalem brevissime cylindricam vix 0.5 mm longam valde dilatata, 2.5 ad 4 mm lata, deinde ad duas tertias longitudinis sensim ad 1.5 ad 2 mm attenuata, apicem rotundatum versus subcylindrica, postea in petala 6 (rarius 5?) omnino libera vel in tubum campanulatum circiter 3 mm longum et latum cohaerentia dehiscens, laciniis e basi c. 1 mm lata in tertia parte inferiore sensim attenuatis, deinde c. 0.5 mm latis ad 4 ad 5 mm ab apice reflexis, parte reflexa anguste spathulata apice incrassata obtusa. Stamina 6; filamenti pars libera 0 ad 1 mm longa; anthera 2.5 ad 4 mm longa, acuta, basi facie inferiore appendice brevi, loculis 4 continuis. Stylus 15 ad 21 mm longus, supra basin paulum incrassatam articulatus, papillam 0.25 ad 0.75 mm longam in fructu relinquens; stigma capitatum, apice styli C. sesquiplo crassus. Fructus ellipsoides, ad 8 mm longus, ad 5 mm crassus, styli rudimento et calicis limbo permanentibus coronatus.

It is probable that all these synonyms belong to one species, and I doubt that the following four species will prove to be distinct after examination of additional material. Anyhow, *Amylotheca Cumingii* is a polymorphic species spread all over the Philippines, though in northern Luzon it is less common; it occurs from sea level to 2,300 m altitude.

The color of the corolla apparently varies in the same way as in the nearly related *A. triflora* (Spanoghe) Dans.; according to the notes on different herbarium labels and to Elmer[2] it may be red, golden yellow, orange, or red in the lower part, yellow in the upper part, or rarely pale yellow, or red and white, in most cases with greenish (perhaps sometimes black) tip.

Philippine Islands, without exact locality, *Cuming 1969*, cotypes of *Amylotheca Cumingii* Van Tiegh. = *Loranthus subalternifolius* Merr. (M, L, Be, the latter labeled by Van Tieghem); "Unisan," *Comisión de la flora forestal de Filipinas 1694* (L). LUZON, Mountain Province, Benguet Subprovince, Sablan *Elmer 6191* (M, NY, S, Be): Rizal Province, *Loher 12228* (M) and *14481* (M, UC); Montalban, *Loher 13370* (M, UC): Tayabas

[2] Leafl. 3: 1067–68; 6: 1067–69.

Province, Alabat Island, low altitude, *Bur. Sci. 48068 Ramos and Edaño* (M, NY, UC, B) : Camarines Norte Province, Mount Cauagan, 80 m altitude, *Ramos 2053* (M, NY, S, L, Be) : Camarines Sur Province, Botol River, 720 m elevation, *Bur. Sci. 76320 Edaño* (M, NY) : Sorsogon Province, Mount Pocdo, 200 m altitude, *Bur. Sci. 23347 Ramos* (M, NY, S, L, B). CATANDUANES, Mount Manguidor (?), 170 m altitude, *Bur. Sci. 30442 Ramos* (M) ; Domingo River, 37 m altitude, *Bur. Sci. 30535 Ramos* (M) ; Mount Abucay, 1,500 m, *Bur. Sci. 75347 Ramos and Edaño* (M, NY, B). LEYTE, Bao, 0 m altitude, *F. B. 16981 Rosenbluth* (M). DINAGAT, iron deposit, *Bur. Sci. 83932 Ramos and Convocar* (M). MINDANAO, Surigao Province, 15 m elevation, *Bolster 237* (M, UC), type of *Loranthus secundiflorus* Merr., *Bolster s. n.* (M, NY, Be) ; *Bur. Sci. 34352* (M) and *34376* (M, Be, B) *Ramos and Pascasio;* Placer, *Wenzel 2518* (M, NY, UC, B) : Agusan Province, Mount Urdaneta, Cabadbaran, *Elmer 13774* (M? B, NY, L) cotypes of *Loranthus aurantiacus* Elm.: Davao Province, Davao, 3 m altitude, *Weber 1460* (M) ; *Copeland 341* (M), *Williams 2580* (M, NY) ; Darong, *Williams 26995* (M, NY) ; Lobulan, *Warburg 14767* (Be) ; Mount Apo, 690 m altitude, *Devore and Hoover 285* (M) ; Mount Apo, Todaya, *Elmer 11701* (M, NY, L) cotype of *Loranthus secundiflorus bolsteri* Elm., *Elmer 11995, 11996* (M, NY, B, U) ; Malalag, Santa Cruz, 10 m altitude, *F. B. 27549 De Mesa* (M) : Lanao Province, Lanao and Balabak Trail, 1,150 m altitude, *F. B. 25233 Alvarez* (M) ; Camp Keithley, *Clemens 545* (M, Be) : Zamboanga Province, Sax River, *Williams 2419* (M, NY). BASILAN, *Hallier 513* (M, NY). SULU ARCHIPELAGO, Jolo, 780 m altitude, *Clemens 9338* (M). PALAWAN, Taytay, sea level, *Merrill 9248* (M, type, NY, S, B, L, cotypes of *Loranthus fragilis* Merr. non Sprague = *Loranthus palawanensis* Merr.).

2. AMYLOTHECA APODOTRIAS Danser sp. nov.

Glaberrima. Ramuli subgraciles, internodiis junioribus basi teretibus, apicem versus valde applanatis, folia adulta ferentibus 2 ad 2.5 mm crassis apice ad sesquiplo crassioribus, vetustioribus teretibus apice incrassatis. Folia opposita vel subopposita; petiolus supra planus vel obtuse carinatus, prope basin incrassatam subteres, 1.25 ad 2 mm crassus, 5 ad 10 mm longus; lamina elliptica vel paulum ovata, crassiuscule coriacea, ad 8 cm longa 4 cm lata, e basi cuneata paulum in petiolum decurrens, margine integerrima vel paulum irregularis, apice obtusa, faciebus paulum diversis opacis, penninervis, costa supra leviter sub-

tus valde prominente, nervis lateralibus supra distinctis subtus minus distinctis. Inflorescentiae spicae triadum floribus omnibus sessilibus; axis teres, basi et insertionibus triadum incrassatus, 10 ad 15 mm inferioribus nudus, ceterum 2 ad 5 paribus triadum, prope basin 1 ad 1.5 mm crassus, apicem versus paulo tenuior; bracteae suborbiculares obtusae, 1 ad 1.5 mm longae. Calicis tubus cylindricus, c. 3 mm longus 1.25 mm latus; limbus infundibuliformis, c. 0.75 mm longus, integer. Corolla c. 13 mm longa, statu alabastri adulti supra basin brevissime cylindricam c. 1 mm longam, 0.5 ad 0.75 mm latam ad 2 ad 2.5 mm dilata, dimidiam longitudinem versus sensim ad dimidian latitudinem attenuata, parte superiore prismatica, apice obtusissima; postea in lacinias 6 usque ad c. 3 mm supra basin dehiscens, tubo campanulato, laciniis e basi c. 1 mm lata primum sensim ad dimidiam latitudinem attenuatis ceterum aequilatis, ad c. 3 mm ab apice reflexis parte reflexa anguste spathulata obtusa. Stamina 6; antherae sessiles, c. 2 mm (?) longae acutae. Stylus prismaticus 6-angularis, dimidia superiore sensim paulum incrassatus, paulum supra basim articulatus, rostrum breve calicis tubo subaequilongum in fructu relinquens; stigma obtusissimum, styli apice vix crassius. Fructus ellipsoides, maturus ignotus, calicis tubo permanente et styli basi coronatus.

Amylotheca apodotrias is closely related to *A. Cumingii* and is, perhaps, an extreme form of it. I provisionally list it as a separate species because of its sessile triads and very short flowers.

MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, *Clemens s. n.* (M, type).

3. **AMYLOTHECA TENUIS Danser sp. nov.**

Omnibus partibus tenuis, glaberrima. Rami internodiis juvenilibus basi teretibus apicem versus valde applanatis ancipitibus nonnumquam etiam complanate quadriangulis, folia adulta ferentibus basi c. 1.5 mm crassis apicem versus ad duplo latioribus, vetustioribus magis teretibus nodis incrassatis, saepe costis 2 permanentibus. Folia opposita; petiolus supra planus subtus obtuse carinatus, supra basin paulum incrassatam teres, difficile a lamina distinguendus, ad 1.25 mm crassus, ad 7 mm longus; lamina ovato-lanceolata, ad 8 cm longa, ad 3.5 cm lata, e basi cuneata in petiolum attenuata, margine integerrima, apicem obtusiusculum versus longiuscule acuminata, penninervis, costa supra subplana distincta subtus valde prominente obtuse carinata,

nervis lateralibus venisque supra subdistinctis, subtus indistinctis. Inflorescentiae racemi triadum floribus omnibus sessilibus, in axillis foliorum adultorum positi; axis 5 ad 17 mm longus basi c. 0.75 mm crassus apicem versus attenuatus, 1 vel 2 (raro 3?) paria florum ferens; pedunculi triadum 2 ad 4 mm longi, c. 0.3 mm crassi; bracteae obtuse ovatae vel suborbiculares, c. 0.5 ad 0.75 mm longae. Calicis tubus cylindricus, c. 3 mm longus, 0.6 mm latus, limbus late infundibuliformis c. 0.5 mm longus integer. Corolla statu alabastri adulti c. 11 mm longa, dimidia parte inferiore ellipsoides ad 2.5 mm lata, superiore magis cylindrica, apice obtusa, postea in lacinias 6 dehiscens, tubo campanulato c. 3 mm longo, laciniis basi c. 1 mm latis, in 2 ad 3 mm inferioribus ad dimidiam latitudinem attenuatis ceterum lingulatis obtusis, c. 2 mm ab apice reflexis. Stamina 6; antherae sessiles, c. 2 mm longae, acutiusculae, loculis 4 continuis. Stylus aequicrassus, c. 11 mm longus; stigma obtusissimum stylo paulo crassius. Fructus ellipsoides, maturus ignotus, calicis tubo permanente coronatus.

Amylotheca tenuis certainly is closely related to *A. Cumingii*, and it is perhaps an extreme form of that species, but the very short flowers and the short inflorescences with rather long-pedicelled triads, induced me to name it as a distinct species.

LUZON, Rizal Province, Montalban, *Loher 12393* (M, type, UC).

4. **AMYLOTHECA MERRILLII (Elmer) Danser.**

Loranthus Merrillii ELM., Leafl. Philip. Bot. 3 (1911) 1068; MERR., Enum. Philip. Fl. Pl. 2 (1923) 107.

Amylotheca Merrillii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 301; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Glabra, inflorescentiis juvenilibus densissime puberulis exceptis. Ramuli subgraciles, internodiis juvenilibus basi teretibus apicem versus magis minusve applanatis plerumque ancipitibus, vetustioribus mox teretibus nodis incrassatis, plerumque costis 2 permanentibus, folia adulta ferentibus basi 1 ad 4 mm crassis apice duplo latioribus vel etiam magis dilatatis, 1.5 ad 7 cm longis. Folia opposita vel subopposita, sessilia; lamina ovata vel cordata vel oblongo-ovata, 3.5 ad 9 cm longa, 2 ad 6 cm lata, crassiuscule coriacea, faciebus distincte diversis, superiore paulo magis lucida quam inferiore, basi rotundata vel leviter cordata, margine integerrima vel irregularis, paulum revoluta, apice obtusa vel rotundata, penninervis, costa supra

plana distincta, subtus valde prominente, nervis lateralibus venisque utrinque prominentibus, facie superiore distinctioribus quam inferiore. Inflorescentiae racemi triadum floribus omnibus sessilibus, in axillis foliorum positae; axis teres, basi paulum incrassatus insertionibus triadum paulum dilatatus, 20 ad 60 mm longus, supra basin c. 1 mm crassus, apicem versus sensim paulum attenuatus, in 10 ad 15 mm inferioribus nudus, ceterum paribus 3 ad 5 decussatis triadum; pedunculi triadum teretes, 1 ad 2 cm longi, 0.5 crassi; bracteae suborbiculares, c. 1 mm longae, concavae. Calicis tubus subcylindricus, c. 2.5 mm longus 1 mm latus; limbus late infundibuliformis vel patens, leviter lobatus, c. 0.5 mm longus. Corolla statu alabastri adulti c. 13 ad 15 mm longa, basi ad 1.5 mm dilatata, ad dimidiam longitudinem sensim angustata, ceterum cylindrica sed ad c. 3 mm ab apice abrupte paulum incrassata, obtusissima, postea omnino vel fere omnino dehiscens in petala 6 basi c. 0.75 mm lata, versus insertiones staminum sensim ad dimidiam latitudinem attenuata, ceterum angustissime spathulata, apice crassiuscula obtusa, ad 3 ad 4 mm ab apice reflexa. Stamina 6; filamenti pars libera 1 ad 1.5 mm longa; anthera c. 2 mm longa, acuta, loculis 4 continuis. Stylus 13 ad 15 mm longus, prope basin et apicem paulo crassior, supra basin articulatus, rostrum 0.25 ad 0.5 mm longum in fructu relinquens. Stigma obtusissimum, styli apice c. sesquiplo crassius. Fructus ignotus ("Young fruit ellipsoid," Elmer, loc. cit.).

According to Elmer (loc. cit.) the corolla is "with a yellowish zone below the blunt bud tips, otherwise bright red."

Amylotheca Merrillii is closely related to *A. Cumingii*, but I prefer to keep it as a separate species because of the twigs that soon thicken; the greater difference between the two surfaces of the leaves and more cordate base; the shorter, less thickish corollas; and the filaments with a longer free portion.

MINDANAO, Davao Province, Mount Apo, Todaya, 1,800 m, *Elmer 10617* (M, B, L, NY, U, cotypes of *Loranthus Merrillii* Elm.).

Doubtful specimen: LUZON, Sorsogon Province, Mount Bulusan, Irosin, *Elmer 17328* (M), without open flowers.

5. AMYLOTHECA HOPEAE (Merrill) Danser.

Loranthus hopeae MERR., Philip. Journ. Sci. § C 9 (1914) 279; Enum. Philip. Fl. Pl. 2 (1923) 105.

Amylotheca Hopeae DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 301; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 37.

Glaberrima, inflorescentiis densissime brevissime puberulis exceptis. Ramuli graciles, internodiis juvenilibus teretibus, nodis valde incrassatis, 3 ad 11 cm longis, folia adulta ferentibus medio 1.5 ad 3 mm crassis, nodis ad duplo crassioribus. Folia opposita, sessilia; lamina cordato-oblonga ad rotundato-cordata, 5 ad 9 cm longa, 3.5 ad 5 cm lata, crasse coriacea, faciebus vix diversis, semilucidis, subglaucis, costa utrinque leviter prominente venis partim visibilibus. Inflorescentiae racemi triadum decussatarum, floribus omnibus sessilibus, singulae in axillis foliorum superiorum; axis ad 2.5 cm longus (M), teres, nodis leviter incrassatus, paribus triadum paucis plerumque 2 (M), pedunculis triadum 5 ad 10 mm longis (M); bracteae rotundato-ovatae obtusae semiamplexicaules, c. 1.25 longae, convexae, reflexae. Calicis tubus subcylindricus, 2.5 mm longus, 1 mm latus; limbus patens, 0.5 mm longus, integer. Corolla "5-merous, 12 mm long, puberulent externally, slightly inflated, cylindric, the lobes united for the basal 3 to 4 mm, forming a tube, the reflexed part above the insertion of the anthers oblong-obtuse, 2.5 mm long. Anther lanceolate, sessile, 2 mm long" (M).

I have seen the type specimen only, but this is not sufficient to verify the parts of the description taken by me from Merrill's and indicated with (M).

Amylotheca Hopeae is peculiar by its unusual leaf, and its rather long, cylindrical twigs strongly thickened at the nodes. The flowers are said to be 5-merous, but I could not affirm this statement for lack of flowers. The corolla is described as orange, with the tips of the petals glaucous.

MINDANAO, Zamboanga Province, opposite Olutanga, 20 m elevation, *F. B. 13297 Foxworthy, Demesa, and Villamil* (M), type of *Loranthus Hopeae* Merr.

6. AMYLOTHECA BOHOLENSIS (Merrill) Danser.

Loranthus boholensis MERR., Philip. Journ. Sci. § C 4 (1909) 141; LECOMTE, Not. Syst. 3 (1915) 175; MERR., Enum. Philip. Fl. Pl. 2 (1923) 103.

Loranthus agusanensis ELMER, Leafl. Philip. Bot. 6 (1913) 1962; MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.

Loranthus terminaliflorus ELMER, Leafl. Philip. Bot. 6 (1913) 1970; MERR., Enum. Philip. Fl. Pl. 2 (1923) 110.

Amylotheca agusanensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 35.

Amylotheca boholensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 36.

Omnis glabra, inflorescentiis nonnunquam brevissime puberulis exceptis. Ramuli graciles; internodiis junioribus teretibus apicem versus applanatis, folia adulta ferentibus 4 ad 10 cm longis, 2 ad 5.5 mm crassis, nodis ad duplo crassioribus. Folia opposita vel subopposita; petiolus supra basin paulum incrassatam subteres, supra anguste applanatus vel leviter canaliculatus, laminam versus magis applanatus, infra rotundatus, 3 ad 15 mm longus, 1.5 ad 2 mm latus; lamina crassiuscule coriacea, faciebus distincte diversis, ovato-lanceolata vel ovato-oblonga vel ovata, 6 ad 20 cm longa, 3 ad 7 cm lata, basi rotundata breviter in petiolum contracta vel magis cuneata, raro leviter cordata, margine integerrima saepe irregularis, saepe paulum revoluta, apicem obtusiusculum versus sensim attenuata vel magis minusve acuminata, facie superiore opaca vel semilucida, inferiore saepe luteola vel rufa, penninervis, costa supra prominente subtus magis prominente, nervis lateralibus venisque supra leviter prominentibus distinctis subtus minus distinctis. Inflorescentiae racemi triadum breviter pedicellatarum floribus omnibus sessilibus, singulae vel paucae in axillis foliorum; axis 15 ad 50 mm longus, teres insertionibus triadum paulum incrassatis, supra basin c. 1 mm crassus, super partem inferiorem nudam 5 ad 32 mm longam paribus c. 2 ad 8 triadum decussatis; pedicelli triadum 0.5 ad 1.5 mm longi, c. 0.5 ad 0.75 mm crassi; bracteae rotundato-triangulares, convexae, 0.75 ad 1 mm longae, obtusissimae. Calicis tubus cylindricus, c. 2 mm longus, 1 ad 1.25 mm latus, limbus magis vel minus infundibuliformis, 0.3 ad 0.5 mm longus, subinteger. Corolla status alabastri adulti c. 23 ad 30 mm longa, gracilis, supra basin c. 1 mm latam vix vel ad 2 mm dilatata, ad duas tertias longitudinis ad dimidiam latitudinem attenuata, deinde cylindrica, in 2.5 ad 4 mm superioribus leviter ellipsoides ad 1 mm crassa, apice obtusa, postae in 6 (raro 5) petala dehiscens, tubum subcylindricum vel paulum inflatum 1 ad 4 mm longum relinquens, lacinitis e basi c. 0.75 mm lata sensim attenuatis, supra insertiones staminum reflexis, parte superiore reflexa 5 ad 7 mm longa angustissime spathulata c. 0.25 ad 0.4 mm lata subobtusa. Filamenti pars libera 1.5 ad 4 mm longa; anthera angustissima acutissima, 3 ad 4 mm longa. Stylus filiformis, 23 ad 30 mm longus, 0.25 ad 0.50 mm supra

basin articulatus, rostrum breve in fructu relinquens; stigma anguste clavatum, stylo c. sesquiplo crassius, obtusissimum. Fructus ellipsoides, immaturi maximi c. 8 mm longi, 5 mm crassi, calicis limbo indistincto et styli parte basali coronati.

I have already reduced *Loranthus agusanensis* and *terminaliflorus* to one species.[2] Further studies prove that *L. boholensis*, though rather strongly different as to the type specimen, is connected by intermediate forms with the species above mentioned and consequently cannot be kept as a separate species. The distribution of *Amylotheca boholensis*, as delimited by me, is remarkably continuous. It occurs from sea level to 1,500 m elevation.

The corolla of *A. boholensis* is red, or red below and yellow above, or green at the tip, as in most species of *Amylotheca*.

GUIMARAS, 100 m elevation, *F. B. 101 Gammill* (M, NY). NEGROS, Occidental Negros Province, Momnun, 150 m, *F. B. 11229 Everett* (M); Gimagaan River, 80 m, *Whitford 1489* (M); Canlaon Volcano, *Bur. Sci. 1164 Banks* (M, Be). BOHOL, Tagbilaran, beach cliff, *Bur. Sci. 1277 McGregor* (M, type, NY, Be, cotypes of *Loranthus boholensis* Merr.). LEYTE, Mount Abucayan, 270 m, *Bur. Sci. 41705 Edaño* (M, B, L, Be). DINAGAT, low altitude, *Bur. Sci. 84091 Ramos and Convocar* (M). BUCAS GRANDE, low altitude, *Bur. Sci. 35133 Ramos and Pascasio* (M). MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, *Elmer 13405* (M, B, L, U, NY, UC, Be, cotypes of *Loranthus agusanensis* Elm.); Mount Urdaneta, near Lake Doñao, 1,500 m elevation, *Elmer 14156* (M, B, L, cotypes of *Loranthus terminaliflorus* Elm.).

7. AMYLOTHECA AMPLEXICAULIS Danser sp. nov. Plate 1, figs. 1 and 2.

Omnis glabra. Ramuli subgraciles, quoque fere nodo dichotomi, internodiis junioribus nodis primum dilatatis deinde incrassatis sesquiplo vel duplo crassioribus quam medio, 3 ad 10 cm longis, folia adulta ferentibus, 1.5 ad 4 mm crassis. Folia opposita, sessilia; lamina ovata vel oblongo-ovata, 4 ad 12 cm longa, 1.5 ad 5 cm lata, basi leviter cordata, maxima latitudine in quarta parte longitudinis, margine subregularis, integra, plana, versus apicem in acumen saepe longum protractum sensim attenuata, crassiuscule coriacea, faciebus distincte diversis, superiore opaca vel semilucida, obscurior, inferiore opaca, regulariter penninervis, costa supra leviter prominente distinctissima, sub-

[2] Bull. Jard. Bot. Buitenzorg III 10: 300.

tus valde prominente, nervis lateralibus venisque tenuioribus supra leviter prominentibus subdistinctis subtus vix visibilibus. Inflorescentiae racemi triadum floribus omnibus sessilibus, singulae vel paucae in axillis foliorum summorum vel etiam superiorum, valde secundae, involucro nullo sed nonnunquam margine corticis circumdatae; axis teres, 30 ad 55 mm longus, supra partem inferiorem 5 ad 10 mm longam nudam paribus triadum 5 ad 10 decussatis, basi 1 ad 2 mm crassus, apicem versus paulum attenuatus; pedicelli triadum 0.75 ad 1 mm crassi, 1 ad 1.5 mm longi, teretes; bracteae rotundato-triangulares, obtusae, c. 1 mm longae, margine albidae. Calicis tubus cylindricus vel campanulatus, c. 2 mm longus, 1.25 mm latus; limbus magis vel minus infundibuliformis, c. 0.5 mm longus, integer vel leviter lobatus, margine albidus. Corolla statu alabastri adulti c. 33 mm longa, supra basim rotundatam c. 2.5 mm lata, tertia parte inferiore ad dimidiam latitudinem attenuata, tertia parte media subcylindrica, in 7 ad 8 mm superioribus abrupte in clavam ellipsoidem obtusam dilatata, postea omnino partita in petala 6 a basi 1.25 mm lata usque ad insertionem staminis ad 0.4 mm attenuata, parte superiore reflexa 7 mm longa anguste spathulata vel sublineari c. 0.5 mm lata obtusa. Filamenti pars libera c. 2.5 mm longa; anthera c. 4 mm longa, acuminata, loculis 4. Stylus filiformis, c. 33 mm longus, stigma clavatum obtusum vel obtusissimum versus nonnihil incrassatus. Cetera ignota.

This is, perhaps, an extreme form of *Amylotheca boholensis*, but differs from that species, as it is known at present, by the sessile amplexicaulous leaves, the strongly dichotomous twigs, the thicker corolla, and the longer corolla and style.

MINDANAO, Misamis Province, Mount Candoon (Mount Bunanan), 1,500 m, *Bur. Sci. 38740 Ramos and Edaño* (M, type, L, B, Be, cotypes).

6. **AMYLOTHECA MINIATA (Elmer) Danser.**

Loranthus miniatus ELMER, Leafl. Philip. Bot. 6 (1913) 1966 non sp. Moore (1897); MERR., Enum. Philip. Fl. Pl. 2 (1923) 107.
Amylotheca miniata DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 301; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Omnis glabra. Ramuli subrobusti sed graciles, internodiis junioribus teretibus nodis incrassatis, folia adulta ferentibus 6 ad 12 cm longis, 3 ad 6 mm crassis. Folia opposita, sessilia; lamina ovata vel ovato-oblonga, basi subcordata, apicem obtu-

siusculum versus sensim attenuata vel subacuminata, 15 ad 23 cm longa, 7 ad 12 cm lata, faciebus valde diversis, superiore subglauca opaca, inferiore flavida vel subfusca, opaca, penninervis, costa supra prominente subtus crassiore, nervis lateralibus et nonnunquam etiam venis utrinque subdistinctis inter nervos crassiores convexa subbullata, margine leviter recurva. Inflorescentiae in axillis foliorum, racemi densi triadum floribus omnibus sessilibus; axis teres, 1.5 ad 3 (ad 8 sec. Elmer) cm longus, paribus triadum numerosis; pedicelli triadum 1 ad 2 cm longi; bracteae suborbiculares obtusissimae, c. 0.75 mm longae. Calicis tubus 2 ad 2.5 mm longus, 1 ad 1.25 mm latus subcylindricus; limbus patens, 0.3 ad 0.5 mm longus, integer vel sublobatus. Corolla statu alabastri adulti 25 ad 28 (ad 30 sec. Elmer) mm longa, subprismatica, in 2 mm inferioribus leviter inflata, in parte superiore antheras continente leviter incrassata, ceterum 1 ad 1.5 mm crassa, obtusa, postea partita in petala 6 linearia parte inferiore paulum dilatata c. 0.5 mm lata, usque ad 5 mm ab apice sensim attenuata 0.3 mm lata, ibi reflexa, parte reflexa anguste lanceolata subobtusa. Filamenti pars libera 0 ad 1 mm longa; anthera linearis acuta, c. 5 mm longa, loculis 4 continuis, facie interiore basi saepe appendice brevi. Stylus filiformis, corolla aequilongus; stigma obtusum styli apice vix crassus. Cetera ignota.

Amylotheca miniata has the leaves strikingly large, coarse, the two sides distinctly different, and with the lamina convex between the strongest nerves; the flowers are long, the free parts of the filaments short. The differences from *A. boholensis* are not large, but up till now I could keep it apart from that species.

Elmer describes the flower as "vermillion red from the base to within two-thirds of the top, then a white or creamy white band and the apical one-third murinus in color;" upon the label of another specimen the flower is called red.

SIARGAO, low altitude, *Bur. Sci. 34886 Ramos and Pascasio* (M, UC, S). MINDANAO, Agusan Province, Mount Urdaneta, 375 m, Cabadbaran, *Elmer 13276* (M, B, L, U, NY, UC, Be, cotypes of *Loranthus miniatus* Elmer): Davao Province, Bonawan, 20 m, *For. Bur. 27707 Angeles and Selorio* (M).

9. AMYLOTHECA FORMICARIA (Elmer) Danser.

Loranthus formicarium ELMER, Leafl. Philip. Bot. 3 (1911) 1069; (*-ius*) MERR., Enum. Philip. Fl. Pl. 2 (1923) 104.

Amylotheca formicaria DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 301; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 37.

Omnis glabra. Ramuli graciles, internodiis junioribus teretibus apicem versus applanatis et dilatatis, vetustioribus nodis incrassatis, folia adulta ferentibus 2.5 ad 6 cm longis, medio 1.5 ad 5 mm crassis, nodis ad sesquiplo crassioribus. Folia opposita vel subopposita; petiolus subnullus vel ad 3 raro 5 mm longus plerumque lamina decurrente alatus, supra basin incrassatam 1 ad 2.5 mm crassus, subtus magis convexus quam supra; lamina ovata ad lanceolata, 5 ad 17 cm longa, 1 ad 5.5 cm lata, plerumque sub basi rotundata in petiolum contracta, raro in petiolum attenuata, margine saepe irregularis, apice obtusa vel rotundata, faciebus vix diversis opacis, penninervis, nervis omnibus utrinque visibilibus, costa subtus paulo magis prominente quam supra, nervis ceteris supra paulo distinctioribus quam subtus. Inflorescentiae racemi triadum breve pedicellatarum floribus omnibus sessilibus, singulae vel paucae in axillis foliorum, secundae; axis teres, 25 ad 40 mm longus, basi et insertioribus pedicellorum paulum incrassatus, supra basin 1 ad 1.5 mm crassus, apicem versus sensim paulum attenuatus, 10 ad 20 mm inferioribus nudus, ceterum paribus 3 ad 6 decussatis triadum; pedicelli triadum 1 ad 2 mm longi, 0.5 ad 1 mm crassi teretes; bracteae suborbiculares, 0.75 ad 1 mm longae, concavae. Calicis tubus subcylindricus vel leviter ellipsoides, 2 ad 2.5 mm longus c. 1 mm latus; limbus magis vel minus infundibuliformis, integer vel sublobatus c. 0.5 mm longus. Corolla statu alabastri adulti subcylindrica, basi vix dilatata, parte superiore paulo crassior quam medio, 26 ad 30 mm longa, 1 mm crassa, postea dehiscens in lacinias 6, tubo cylindrico 3 ad 5 mm longo, laciniis linearibus e basi 0.5 mm lata ad tertiam partem longitudinis attenuatis deinde ad c. 0.5 mm dilatatis, 7 ad 10 mm ab apice reflexis, apice obtusis. Filamenti pars libera 3 ad 7 mm longa; anthera 2.5 ad 3.5 mm longa linearis acuta loculis 4 continuis. Stylus filiformis, corolla aequilongus, supra basin articulatus rostrum c. 0.5 mm longum in fructu relinquens; stigma stylo c. sesquiplo crassius obtusissimum. Fructus ellipsoides a calicis limbo permanente et styli basi coronatus (maturus ignotus).

Amylotheca formicaria is distinguished by its leaves being short-petioled and the two sides hardly different, the long slender flowers, the corollas hardly widened above and below when in

bud, and the long filaments. Yet it is not always easily distinguished from *A. boholensis*. According to herbarium labels the corolla is red below, and yellowish green above.

BOHOL, Sevilla, 1,000 m elevation, *Bur. Sci. 43331 Ramos* (UC, B, Be). MINDANAO, Misamis Province, Cagayan, *Piper 173* (M), *151* (Be): Lanao Province, Camp Keithley, Lake Lanao, *Clemens s. n.* (M, Be?): Davao Province, Mount Apo, Todaya, *Elmer 11304* (M, NY, B, L) cotypes of *Loranthus formicarium* Elm.: Cotabato Province, Bagumbayan, 12 m elevation, *Bur. Sci. 11578 C. B. Robinson* (M).

10. AMYLOTHECA CONFERTIFLORA (Merrill) Danser.

Loranthus confertiflorus MERR., Philip. Journ. Sci. § C 13 (1918) 273; Enum. Philip. Fl. Pl. 2 (1923) 103.

Amylotheca confertiflora DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 36.

Glabra, inflorescentiis et floribus densissime puberulis exceptis. Ramuli subrobusti; internodia juvenilia acute quadriangula apicem versus paulum applanata, vetustioriam dum folia ferunt crassiore magis teretia 2 ad 7 cm longa, 2.5 ad 7 mm crassa. Folia opposita; petiolus teres, prope laminam supra canaliculatus, 11 ad 14 mm longus, basi ad 3 mm crassus, laminam versus tenuior 1 ad 2 mm crassus; lamina ovato-lanceolata, 8 ad 15 cm longa, 2 ad 4 cm lata, maxima latitudine prope basin rodundatam saepe in petiolum contractam, apicem longe acuminatum obtusiusculum versus sensim attenuata, faciebus valde diversis, tenuiter coriacea, supra semilucida subglauca, inter nervos crassiores convexa, subtus minus lucida badiuscula, penninervis, costa supra distincta subtus valde prominente, nervis lateralibus venisque supra partim prominentibus distinctis, subtus multo minus distinctis. Inflorescentiae racemi densi triadum floribus omnibus sessilibus; axis cylindricus c. 3 cm longus (sec. Merrill); pedicelli triadum vix 1 mm longi, c. 0.5 mm crassi; bracteae ovatae, obtusae, semiamplexicaules c. 1.5 ad 2 mm longae. Calicis tubus c. 1.5 mm longus, 1 mm latus, subcylindricus; limbus patens c. 0.5 mm longus, distincte 6-lobus. Corolla statu alabastri adulti 6-angularis, 1.5 ad 2 mm inferioribus distincte in partem ellipsoidem dilatata ad 1.5 mm lata medio c. 1 mm lata, parte apicali antheras continente ellipsoides, apice obtusa, postea dehiscens in lacinias 6, tubo c. 3 mm longo paulum inflato, laciniis e basi c. 0.75 mm lata sensim ad 0.5 mm attenuatis, parte apicali c. 3 mm longa reflexa crassiuscula obtusa paulo latiore.

Antherae subsessiles c. 3 mm longae, angustae acutae vel acuminatae, loculis 4 continuis. Stylus filiformis subaequicrassus c. 20 mm longus; stigma vix crassius obtusum. Cetera ignota.

This is different from all other Philippine species of *Amylotheca* by the 4-angular twigs; from most of them, moreover, by the papillose-puberulent young inflorescences and flowers. The color of the flower is said to be red.

LEYTE, Tigbao, near Tacloban, *Wenzel 1249* (M).

11. AMYLOTHECA REVOLUTA (Merrill) Danser.

Loranthus revolutus MERR., Philip. Journ. Sci. § C 4 (1909) 142; Enum. Philip. Fl. Pl. 2 (1923).

Amylotheca revoluta DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 302; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Glaberrima. Ramuli subgraciles, internodiis junioribus nodis valde applanatis non incrassatis, folia adulta ferentibus 0.8 ad 2.5 cm longis, 2 ad 4.5 mm crassis, vetustioribus teretibus nodis incrassatis. Folia opposita; petiolus supra basin incrassatam teres, laminam versus subtus paulum supra distincte applanatus marginibus acutis, difficile a laminae basi contracta distinguendus, ex parte excepta c. 10 mm longus, 1.5 mm latus; lamina elliptica, maxima latitudine circa medium, 5 ad 8 cm longa, 2 ad 3.5 cm lata, basi cuneata in petiolum contracta, margine integro subrevoluta, apice obtusa, crassiuscule coriacea, faciebus valde diversis, superiore subglauca inferiore badiuscula, regulariter penninervis costa supra distincta subtus valde prominente, nervis lateralibus crassioribus supra distinctis vel indistinctis, subtus semper multo minus distinctis, venis vix visibilibus. Inflorescentiae racemi triadum flore medio sessili, floribus lateralibus breviter pedicellatis, singulae vel gregatim in nodis iam defoliatis, in scrobiculis corticis insertae sed involucre bracteoso carentes; axis teres nodis incrassatis et complanatis, 3 ad 3.5 cm longus supra basin incrassatam 1.5 mm crassus, apicem versus attenuatus, paribus triadum c. 4 in media parte superiore vel etiam magis apicem versus aggregatis; pedicelli triadum c. 2 mm longi, 0.75 mm crassi, pedicelli florum lateralium c. 1 mm longi, 0.75 mm crassi; bracteae rotundato-ovatae obtusae amplexicaules 1 ad 1.5 longae parte apicali albidae, saepe irregulariter laceratae. Calicis tubus cylindricus vel subellipsoides, c. 2.5 mm longus, 1 mm latus, limbus patens c. 0.25 ad 0.35 mm longus distincte sed saepe irregulariter obtuse lobatus. Corolla statu alabastri adulti 22 ad 25 mm longa, subcylindrica

vel prismatica, basi et parte apicali antheras continente paulum incrassata medio c. 1.5 mm crassa, postea dehiscens in petala 6 basi magis vel minus cohaerentia sublinearia, basi 0.75 mm lata, versus apicem c. 0.5 mm latum sensim attenuatis, in 5 ad 6 mm superioribus reflexis lanceolatis ad 0.75 mm latis subacutis. Filamenti pars libera 1.5 ad 2 mm longa; anthera linearis acutissima, loculis 4 continuis. Stylus 22 ad 25 mm longus filiformis subaequicrassus basi articulatus. Fructus immaturus ellipsoides, calicis tubo et disco coronatus.

This species is similar to *Amylotheca crassilimba*, but differs in the twigs being slenderer, the leaves more exactly elliptical, the inflorescences bearing flowers in the upper part only, the flowers smaller in all parts, and the bracts permanent. The corolla is described as yellow with a red tip.

LUZON, Zambales Province, Mount Tapolao, 2,100 m, *Bur. Sci. 4785 Ramos* (M): Mountain Province, Ifugao, Mount Polis, *Bur. Sci. 19688 McGregor* (M).

12. AMYLOTHECA CRASSILIMBA (Merrill) Danser.

Loranthus crassilimbus MERR., Philip. Journ. Sci. § C 13 (1918) 274; Enum. Philip. Fl. Pl. 2 (1923) 103.

Amylotheca crassilimba DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 36.

Omnis glabra. Ramuli robusti, internodiis junioribus teretibus nodis dilatatis non incrassatis, folia adulta ferentibus 2.5 ad 7 cm longis, 4 ad 7 crassis, vetustioribus nodis incrassationibus validis inflorescentias ferentibus. Folia opposita; petiolus supra plana vel leviter convexa, subtus valde convexa, marginibus acutis non alatis, 20 ad 30 mm longus, 3 ad 4.5 mm latus; lamina oblonga ad ovato-oblonga, rarius ovata vel lanceolata, maxima latitudine paulum sub medio, 10 ad 20 cm longa, 2.5 ad 10 cm lata, basi rotundata vel cuneata paulum in petiolum contracta, margine regularis et integer, apice obtusiuscula crasse coriacea, faciebus valde diversis, (in herbario) superiore viridi inferiore rufa, regulariter penninervis, costa supra subdistincta subtus valde prominente, nervis lateralibus utrinque vix visibilibus. Inflorescentiae racemi triadum flore medio sessili floribus lateralibus breviter pedicellatis vel sessilibus, in nodis iam defoliatis insertae, raro etiam in axillis foliorum vetustissimorum, basi scrobiculo corticis circumdatae superea involucro ex paucis paribus bractearum triangularium saepe ad 2.5 raro ad 6 mm longarum composito saepe mox deciduo; axis teres nodis paulum

applanatis, 3 ad 6.5 cm longus, supra basin incrassatam 2 ad 4 mm crassus apicem versus attenuatus fere a basi dense florifer, paribus florum ad 9; pedicelli triadum 3 ad 5 mm longi 1.25 mm crassi basi et apice vix incrassati; pedicelli florum lateralium 0 ad 2 mm longi c. 1 mm crassi; bracteae deciduae, reniformes vel breve triangulares, ad 2 mm longae, margine albido irregulariter lacerato. Calicis tubus ellipsoides, basi et infra limbum paulum contractus, 3 ad 4 mm longus, medio 1.5 ad 1.75 mm latus; limbus c. 0.75 mm longus, patens, margine albido distincte obtuseque lobatus vel irregulariter laceratus. Corolla statu alabastri adulti 22 ad 33 mm longa, subcylindrica, supra basin paulum dilatata ad 3 vel 4 mm lata, deinde attenuata ad 2 mm crassitudine, c. 5 ad 7 mm ad apice incrassata, ceterum cylindrica apice obtusissima, postea usque ad basin partita in petala 6 linearia basin versus paulum dilatata 1 ad 2 mm lata, sursum paulum attenuata, 5 ad 7 mm superioribus reflexis paulo latioribus, ad 0.75 mm latis, apice obtusiusculis. Filamenti pars libera 0 ad 1.5 mm longa; anthera 3.5 ad 5 mm longa, basi facie inferiore appendice parva, apicem versus sensim attenuata, acutissima, loculis 4 continuis. Stylus 22 ad 33 mm longus, 6-angularis, tenuis, 5 ad 6 mm superioribus paulo crasior sulcis 12, supra discum articulatus. Fructus ellipsoides, ad 10 mm longus, 7 mm crassus, sub calicis limbo permanente contractus.

The peculiar combination of characters presented by this species is discussed at the beginning of the section on this genus. Most peculiar are the deciduous bracts and the wholly choripetalous corolla. An involucre as we find at the base of the inflorescences is also found at the base of each twig beginning its growth after a period of rest. The flowers are described on the labels as red and yellow; red, yellow, and green; or entirely yellow, the commonest flower colors in *Amylotheca.*

LUZON, frontier between Nueva Vizcaya and Pangasinan, 1,200 to 1,400 m altitudes, *F. B. 15860 Merritt* (M): Nueva Ecija Province, Mount Umingan, 300 m elevation, *Bur. Sci. 26409 Ramos and Edaño* (M, type of *Loranthus crassilimbus*): Rizal Province, *Loher 13897* (M, UC); Montalban, *Loher s. n.* (UC); Panauisan, *Loher 12434* (M, UC); Mount Lumutan, 300 m elevation, *Bur. Sci. 29654 Ramos and Edaño* (M); Mount Irig, 900 m elevation, *Bur. Sci. 41959 Ramos* (M, B, L, Be); Mount Irid, 750 m elevation, *Bur. Sci. 48495 Ramos and Edaño* (UC, NY, B): Camarines Sur Province, Mount Potianay, summit, 900 m elevation, *Bur. Sci. 75933* and *76023 Edaño* (M, NY).

PANAY, Capiz Province, Mount Madiaas, 355 m elevation, *Bur. Sci. 30724 Ramos and Edaño* (M, B, L, Be).

13. AMYLOTHECA OVATIFOLIA (Merrill) Danser.

Loranthus ovatifolius MERR., Philip. Journ. Sci. § C 3 (1908) 133; 4 (1909) 143; Enum. Philip. Fl. Pl. 2 (1923) 107; excl. specim.
Amylotheca ovatifolia DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 302; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Omnis glabra. Ramuli graciles, internodiis teretibus, junioribus nodis incrassatis dilatatis, folia adulta ferentibus 1.5 ad 5.5 cm longis, 1 ad 2 mm crassis. Folia opposita; petiolus supra basin paulum incrassatam teres supra sulcatus, 3 ad 5 mm longus, 0.75 ad 1.5 mm crassus; lamina crasse vel tenuiter coriacea, subfragilis, ovato-cordata ad ovato-lanceolata, 3 ad 8 cm longa, 1 ad 5.5 cm lata, ramorum apices floriferos versus sensim minor, faciebus valde diversis, basi cordata vel rotundata raro cuneata, margine regularis et integra nonnunquam paulum revoluta, apicem obtusum versus paulum acuminata, facie superiore costa plana vel impressa sed distincta nervis lateralibus et venis indistinctis, facie inferiore costa valde prominente nervis lateralibus paulo magis visibilibus quam facie superiore. Inflorescentiae singulae in axillis foliorum lateralium vel etiam sequentium, racemi triadum flore medio sessili lateralibus pedicellatis, basi involucre ex paucis paribus bractearum breviter triangularium parte apicali obtuse carinatarum composito, quarum interiores c. 1.5 mm longae exteriores breviores. Axis 5 ad 10 mm, tantum longus basi 1 ad 1.25 mm crassus, teres, nodis paulum applanatus apicem versus paulum attenuatus, dimidia parte inferiore nudus superiore paribus 3 ad 4 triadum; pedicelli triadum teretes 1.5 ad 3 mm longi 0.5 ad 0.75 mm crassi, apice paulum incrassati; pedicelli florum lateralium 1.25 ad 1.5 mm longi, c. 0.5 mm crassi; bractea floris medii ovata semiamplexicaulis acuta, parte apicali magis albida et obtuse carinata, c. 1.25 ad 1.75 mm longa; bracteae florum lateralium paulo minores et parte apicali minus diversa. Calicis tubus cylindricus c. 1.5 mm longus; limbus 0.5 mm longus integer. Corolla statu alabastri 20 ad 23 mm longa, subcylindrica, parte inferiore vix superiore paulum dilatata, basi c. 1 ad 1.5 mm lata, medio paulo angustior, apice obtusa vel subacuta, postea partita in lacinias 5 c. 0.3 mm latas, 5 mm ab apice reflexas, parte superiore angusta spathulata, tubum 3 ad 6 mm longum relinquens. Stamina 5; filamenti pars libera c. 2 mm longa; anthera c. 1.5 mm longa,

oblonga, obtusa, mucronulata, loculis 4. Stylus 20 ad 23 mm longus, filiformis, stigma versus paulum crassior; stigma stylo paulo crassius, obtusum. Fructus ignotus.

Amylotheca ovatifolia, though closely related to *A. saccata* and *A. Aherniana*, has certainly 5-merous flowers. The flowers are said to be scarlet or red.

BOHOL, Bilar, 600 m elevation, *Bur. Sci. 43123 Ramos* (M, UC) and *43262 Ramos* (M, UC, Be). MINDANAO, sea coast between Iligan and Initao, *Clemens 1195* (M, type, Be, cotype of *Loranthus ovatifolius* Merr.).

14. AMYLOTHECA SACCATA (Elmer) Danser.

Loranthus saccatus ELMER, Leaf. Philip. Bot. 3 (1911) 1072; MERR., Enum. Philip. Fl. Pl. 2 (1923) 109.

Loranthus lucidus MERR., Philip. Journ. Sci. § C 9 (1914) 277; LECOMTE, Not. syst. 3 (1915) 175; MERR., Enum. Philip. Fl. Pl. 2 (1923) 106.

Loranthus cordilimbus MERR., Philip. Journ. Sci. 30 (1926) 391.

Amylotheca saccata and *cordilimba* DANS., Bull. Jard. Buitenzorg III 10 (1929) 300, 302; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 36, 38.

Glabra, inflorescentiis nonnunquam minute leprosulis et floribus junioribus nonnunquam dense puberulis exceptis. Ramuli plerumque graciles, internodiis apice applanatis et folia versus incrassatis, folia adulta ferentibus 2 ad 9 cm longis, 1.5 ad 3.5 mm crassis. Folia opposita vel subopposita; petiolus basi paulum incrassatus ceterum teres supra canaliculatus, 3 ad 12 mm longus, 0.6 ad 3 mm crassus; lamina tenuiter coriacea, subfragilis, ovata ad ovato-lanceolata, plerumque 5 ad 21 cm longa, 1.5 ad 9 cm lata, apices ramorum floriferos versus sensim minor, basi cordata vel rotundata vel cuneata, margine regularis et integra, plana vel leviter revoluta, apicem acutum versus longe acuminata, faciebus valde diversis, penninervis, nervis lateralibus oblique incurvatis, facie superiore costa subplana nervis lateralibus venisque paulum prominentibus, facie inferiore costa valde prominente nervis lateralibus venisque saepe distinctioribus. Inflorescentiae singulae vel binae (raro ternae?) in axillis foliorum terminalium vel etiam 1 vel 2 parium sequentium, racemi triadum floribus mediis sessilibus lateralibus pedicellatis, basi margine scrobiculi corticis necnon involucre 3 ad 6 parium decussatorum bractearum triangularium acutarum vel acuminatarum, quarum interiores c. 3 mm longae, obtuse, carinatae, exteriores minores; axis fere a basi florifer, paribus 6 ad 16 triadum decus-

satis, teres nodis applanatis, 4 ad 7 cm longus, supra basin 1 ad 2.25 mm crassam sensim attenuatus; pedicelli plerumque 3 ad 6 mm longi c. 0.75 ad 1.25 mm crassi; pedicelli florum lateralium c. 2.5 ad 3.5 mm longi, 0.5 ad 0.75 mm crassi; bracteae florum mediorum ovatae acutae parte superiore magis albidae et plerumque obtuse carinatae, semiamplexicaules, 2.5 ad 3.5 mm longae; bracteolae florum lateralium paulo minores et obtusiores et parte superiore minus diversa. Calicis tubus subcylindricus, 2 ad 2.5 mm longus, 1.25 ad 1.5 mm latus; limbus 0.3 ad 0.5 mm longus, subinfundibuliformis integer. Corolla statu alabastri adulti 14 ad 18 mm longa, quarta parte inferiore ad 3 mm inflata, basi rotundata sursum sensim attenuata, parte media cylindrica 1 mm lata, quinta parte superiore 3.5 ad 4 mm longa, 6-angularis breve ellipsoides subglobosus c. 2.5 mm lata, postea profunde partita in lacinias 6 e basi 1.5 mm lata sensim attenuatas in partem mediam 0.3 mm latam deinde in partem apicalem oblongam 0.75 ad 1 mm latam 3 mm longam obtusam dilitatas 6 mm ab apice reflexas, tubum 1 ad 2 mm longum relinquens. Stamina 6; filamenti pars libera c. 2.5 ad 3.5 mm longa; anthera oblonga, apice basique obtusa c. 1.5 mm longa 0.5 mm lata loculis 4 continuis. Stylus 14 ad 18 mm longus, c. 0.25 mm crassus prope stigma paulo crassior, ad basin articulatus; stigma sublobosum obtusissimum styli apice c. sesquiplo crassius. Fructus ellipsoides vel subpiriformis, maximi ad 7 mm longi, 5 mm crassi.

Elmer, in his original description, gives the corolla and style as 25 mm long, whereas in reality the length is 15 to 19 mm. Hence Merrill's belief that his *Loranthus lucidus* was a different species. Though the type specimen of *Loranthus lucidus* shows several differences from *Amylotheca saccata*, these differences are of too little value to keep *Loranthus lucidus* apart as a species.

Amylotheca saccata occurs from low altitudes to 1,200 m elevation. The flowers are called white or red on herbarium labels, the fruit white.

LUZON, Cagayan Province, Pinagsongayan River, 390 m, *Bur. Sci. 78549 Edaño* (M): Rizal Province, *Loher 12578* (M, UC): Laguna Province, San Antonio (Dahican River), *Bur. Sci. 16647 Ramos* (M, type, L, Be, cotypes of *Loranthus lucidus* Merr.): Camarines Sur Province, Mount Isarog, 1,200 m, *Bur. Sci. 76281 Edaño* (M, NY). SAMAR, Loquilocon, *Bur. Sci. 43873 McGregor* (M, type, NY, UC, cotypes of *Loranthus cordilimbus* Merr.). PANAY, Capiz Province, Jamindan, San Juan, 74 m elevation,

Bur. Sci. 31026 Ramos and Edaño (M, B, Be). DINAGAT, low altitude, *Bur. Sci. 83804 Ramos and Convocar* (M); 3 m elevation, *Bur. Sci. 84094 Ramos and Convocar* (M). MINDANAO, Davao Province, Mount Apo, Todaya, 1,200 m elevation, *Elmer 11747* (M, B, L, U, NY, Be, cotypes of *Loranthus saccatus* Elm.).

15. AMYLOTHECA AHERNIANA (Merrill) Danser.

Loranthus ahernianus MERR., Philip. Journ. Sci. 1 Suppl. (1906) 184; § C 4 (1909) 143; LECOMTE, Not. Syst. 3 (1914) 175; MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.

Loranthus acuminatissimus MERR., Philip. Journ. Sci. § C 4 (1909) 143; Enum. Philip. Fl. Pl. 2 (1923) 102.

Amylotheca Aherniana DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 300; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 35.

Omnis glabra, pedunculis pedicellisque nonnunquam tenuiter leprosulis exceptis. Ramuli subgraciles, teretes; internodia apice dilatata et ad insertiones foliorum incrassata, internodia folia ferentia 2 ad 5 mm crassa, 2 ad 5 cm longa, vetustiora incrassationibus majoribus inflorescentias ferentibus. Folia opposita vel subopposita; petiolus supra basin vix incrassatam teres, laminam versus supra leviter applanatus vel subcanaliculatus, 4 ad 14 mm longus, 1 ad 2.5 mm latus, haud alatus; lamina crasse vel tenuiter coriacea, subfragilis, ovata ad ovato-lanceolata, plerumque 5 ad 13 cm longa, 1.5 ad 4.5 cm lata, apices ramorum versus sensim minor, basi rotundata vel cuneata, margine integro vix revoluto, apicem subacutum versus magis vel minus acuminata, faciebus valde diversis, penninervis, sed nervis lateralibus inferioribus saepe approximatis valde incurvatis, ergo basi triplinervi vel quintuplinervi, facie superiore costa leviter prominente nervis lateralibus venisque distinctis, facie inferiore etiam nervis omnibus distinctis sed costa magis prominente. Inflorescentiae racemi triadum flore medio sessili lateralibus pedicellatis, singulae vel binae in axillis foliorum terminalium vel etiam parium nunnullorum sequentium, basi margine lacerato scrobiculi corticis et involucro parium decussatorum 3 ad 6 bractearum triangularium obtuse carinatarum subacutarum, quarum interiores 3 ad 4 mm longae exteriores sensim breviores; axis partibus 0.3 ad 0.75 superioribus paria 2 ad 6 triadum decussata ferens, infra saepe incrassationibus parvis decussatis, teres vel angulatus, 2.5 ad 7 cm longus, 1 ad 1.25 mm crassus, apicem versus paulum attenuatus; pedicelli triadum plerumque 5 ad 12 mm longi, c. 0.75 mm crassi, apice paulo crassiores; pedicelli

florum lateralium c. 3 ad 8 mm longi, 0.5 ad 0.75 mm crassi; bracteae florum mediorum ovato-rhombeae simiamplexicaulis, parte superiore albidae obtuse carinatae, apice acutae vel acuminatae, 2.5 ad 3.5 mm longae; bracteolae florum lateralium rotundato-ovatae, plerumque obtusissimae, c. 1.5 ad 2 mm longae, ecarinateae sed parte superiore albidae. Calicis tubus cylindricus basi rotundatus, limbus cupuliformis vel subinfundibuliformis, integer vel leviter 6-lobatus, crassus, margine tenui, calix omnis 2.5 ad 3 mm longus, medio 1.5 ad 1.75 mm latus. Corolla 23 ad 32 mm longa, statu alabastri adulti in 5 ad 8 mm inferioribus inflata basi rotundata sursum sensim attenuata, deinde subcylindrica, parte superiore abrupte in clavam ellipsoidem obtusissimam 4 ad 6 mm longam, 2 ad 2.5 mm latam incrassata, postea in petala 6 omnino libera partita vel in lacinias 6 basi in tubum 3 ad 5 mm longum unitas dehiscens, petalis vel laciniis e basi c. 1 mm lata attenuatis deinde linearibus c. 0.5 mm latis, parte superiore anguste spathulatis c. 0.75 mm latis obtusis, dimidia longitudine reflexis. Stamina 6; filamenti pars libera 8 ad 9 mm longa; anthera linearis basi cuneata apice obtusissima, 3 ad 5 mm longa, 0.5 mm lata, loculis 4 continuis. Stylus 23 ad 32 mm longus, filiformis, ima basi articulatus, stigma et basin versus paulo crassior; stigma globosa, styli apice sesquiplo crassius. Fructus ignotus.

Loranthus acuminatissimus Merr. cannot be kept separate as a species from *L. ahernianus* Merr., as it only differs from the latter by the entirely glabrous inflorescences and slightly different leaf shape. More different are *F. B. 8991* and *F. B. 6944* by having narrower, stronger-nerved leaves, the former, moreover, by quite choripetalous corollas, whereas the latter has no flowers. *Loranthus ahernianus* and *L. acuminatissimus* also are described by Merrill as sympetalous. If later collections prove that *Amylotheca Aherniana* really is sympetalous, there will be reason to base a new species on the two numbers mentioned.

The herbarium labels describe the color of the corollas as yellow.

LUZON, Mountain Province, Benguet, Baguio, Sablang River, *Bur. Sci. 5700 Ramos* (M, type, Be, cotype of *Loranthus acuminatissimus* Merr.): Zambales Province, Bapotao, *Bur. Sci. 5115 Ramos* (M); Bacao, *F. B. 6944 Curran* (M); *F. B. 8991 Curran* (M, NY); Anuling, low altitude, *Bur. Sci. 44565 Ramos and*

Edaño (M, NY, UC): Rizal Province, Bosoboso, *F. B. 2140 Ahern's collector* (M, type, NY, B, S, Be, cotypes of *Loranthus ahernianus* Merr.).

16. AMYLOTHECA VIRIDIS (Merrill) Danser.

Loranthus viridis MERR., Philip. Journ. Sci. 1 Suppl. (1906) 189; § C 4 (1909) 145; Enum. Philip. Fl. Pl. 2 (1923) 111.

Loranthus pachycladus MERR., Philip. Journ. Sci. § C 13 (1918) 1918; Enum. Philip. Fl. Pl. 2 (1923) 107.

Amylotheca viridis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 303; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 39.

Omnis glabra. Ramuli robusti, internodiis non bene distinctis, folia adulta ferentibus primum teretibus nodis paulum applanatis et foliorum insertionibus incrassatis, postea minus applanatis foliorum insertionibus in costam obtusam decurrentibus, 4- ad 6-angularibus, 6 ad 10 mm crassis. Folia opposita vel subopposita vel rarius ternata, petiolus supra basin paulum incrassatam subteres, laminam versus applanatus, dilatatus, prope laminam supra subtusque convexus marginibus subalatis, 15 ad 35 mm longus, prope basin 1.5 ad 3.5 mm crassus; lamina crassea coriacea, plana, faciebus valde diversis, 6 ad 12 cm longa, 2.5 ad 6 cm lata, breve elliptica ad oblongo-lanceolata, maxima latitudine plerumque circa medium, basi obtusa vel magis minusve acuta, semper paulum in petiolum attenuata, apicem obtusum versus plerumque leviter acuminata, margine integro distincte revoluto, facie superiore semilucida vel opaca saepe subglauca, costa leviter convexa sed distincta nervis lateralibus indistinctis, facie inferiore opaca saepe badiuscula, costa valde prominente nervis lateralibus valde indistinctis saepe invisibilibus. Inflorescentiae umbellae triadum floribus mediis sessilibus lateralibus pedicellatis, plerumque solitariae in axillis foliorum terminalium et parium 1 vel 2 sequentium, basi margine scrobiculi corticis circumdatae sed involucro carentes; pedunculus cylindricus basi et insertionibus triadum incrassatis, 28 ad 35 mm longus, 2 ad 3.5 mm crassus; pedicelli triadum plerumque 4 ad 6 in apice pedunculi distincte decussati, nonnunquam pari singulo remoto, teretes, 12 ad 17 mm longi, 1.5 ad 2.5 mm crassi, basi apiceque incrassati; pedicelli florum lateralium teretes, 4 ad 8 mm longi, basi subincrassati; bracteae ovatae amplexicaules obtusae, 2.5 ad 4 mm longae, basin versus crassiusculae. Calicis subcylindricus, tertia parte superiore

magis minusve infundibuliformis, omnis 5 ad 7 (5 ad 6) mm longus, 3 ad 3.5 (2 ad 2.5) mm latus, limbo 1 ad 1.5 mm longo, integro vel sublobato. Corolla sympetala 30 ad 47 (30 ad 40) mm longa, statu alabastri adulti supra partem basalem cylindricam c. 1 mm longam, 2 ad 3 mm latam in partem ellipsoidem quartam partem totius corollae longam ad 5 ad 7 mm inflata, deinde sensim in partem mediam 6-angularem 2.5 ad 3 (2 ad 2.5) mm latam attenuata, denique in clavam apicalem 6-angularen obtusissimam incrassata, postea in lacinias 6 partita, tubum plerumque 4 ad 7 mm longus relinquens, laciniis e basi 2.5 mm lata sensim ad 0.75 mm attenuatis deinde in partem apicalem spathuliformen 2 ad 2.5 (1.25 ad 1.5) mm latam obtusam crassam (sectione transversa quadriangulam) attenuatis supra insertiones filamentorum reflexis vel nonnihil volutis. Filamenti pars connata prominens, pars libera c. 5 mm longa, in excavatione petali quadrans; anthera obtusa 6 mm longa, 0.5 mm lata, loculis 4 continuis. Stylus 30 ad 47 (30 ad 40) mm longus, supra basin articulatus, papillam 1 ad 1.5 mm longam in fructu relinquens, c. 0.5 mm crassus sed in 10 ad 15 mm superioribus sensim ad 0.75 mm incrassatus; stigma capitatum obtusissimum, styli apice vix crassius. Fructus ellipsoides vel breve piriformis; ad 18 mm longus, 15 mm crassus; endospermum obpiriforme, ad 5 mm longum 4 mm crassum.

As the dimensions of carnose or coriaceous flowers, like those of *A. viridis*, are rather different in the dried and in the fresh state, I have added, between brackets, after the dimensions of the parts soaked in water, those of the same parts dried.

The flowers of *A. viridis* are said on the herbarium labels to have a green or yellowish green corolla. The species occurs from low altitudes to 650 m above sea level.

Philippine Islands, *Cuming 1953* (M). LUZON, Ilocos Norte Province, Burgos, 44 m elevation, *Bur. Sci. 27323 Ramos* (M, type, L, NY, cotypes of *Loranthus pachycladus* Merr.), low altitude, *Bur. Sci. 32836 Ramos* (M): Zambales Province, Baliucaguan, *Warburg 13326* (Be): Bataan Province, Lamao River, Mount Mariveles, 600 m elevation, *F. B. 816 Borden* (M, type, NY, B, Be, cotypes of *Loranthus viridis* Merr.), 650 m elevation, *F. B. 1814 Borden* (M, Be), 200 m, *F. B. 2938 Borden* (M, UC, B, S, Be); Lamao Forest Reserve, *F. B. 6318 Curran* (M, NY, B): Rizal Province, *Loher 14896* (M, UC); Montalban, *Loher 13363* (M, UC); Balacbac, *Loher 14939* (M).

17. **AMYLOTHECA PENTAGONA** (Merrill) Danser.

Loranthus pentagonus Merr., Philip. Journ. Sci. § C 7 (1912) 80; Enum. Philip. Fl. Pl. 2 (1923) 108.

Amylotheca pentegona Dans., Bull. Jard. Bot. Buitenzorg III 10 (1929) 302; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 38.

Omnis glabra. Ramuli robusti, internodiis indistinctis, folia adulta ferentibus costis 5 valde prominentibus subacutis, ex insertionibus foliorum utrinque decurrentibus, lateribus subconcavis separatis, insertionibus foliorum paulum incrassatis, 6 ad 8 mm crassis. Folia sparsa vel magis minusve decussata vel ternata; petiolus 10 ad 20 mm longus, supra basin subincrassatam teres 1.5 ad 3 mm crassus, laminam versus sensim applanatus marginibus subalatis; lamina faciebus valde diversis, coriacea, elliptica vel oblonga, maxima latitudine in vel paulum sub medio, basi rotundata vel cuneata, apicem obtusum versus breve acuminata, margine revoluta, facie superiore subglauca opaca, costa distincta paulum prominente, nervis lateralibus subdistinctis venis invisibilibus, facie superiore badiuscula opaca, costa praecipue basin versus valde prominente nervis lateralibus distinctioribus venis partim visibilibus. Inflorescentiae racemi triadum partim sparsarum partim decussatarum, floribus mediis sessilibus lateralibus pedicellatis, singulae in axillis foliorum superiorum, raro etiam vere terminales; axis basi margine lacerato scrobiculi corticis circumdatus sed involucro bractearum carens, basi subincrassatus, 30 ad 50 mm longus, parte inferiore et media 3 ad 5 mm crassus, apicem versus paulum attenuatus, costis ex insectionibus triadum decurrentibus angulatus; pedicelli triadum basi apiceque subincrassati, 8 ad 10 mm longi, 2 ad 3 mm crassi; pedicelli florum lateralium c. 3 mm longi, basi 2 apice 3 mm crassi; bracteae suborbiculari-cordatae, obtusae, c. 3 mm longae, basi crassiusculae. Calicis subcylindricus, basi rotundatus, 6.5 ad 7.5 (5.5 ad 6.5) mm longus, 4 ad 4.4.5 (3.5 ad 4.5) mm latus, limbo c. 1.5 mm longo erecto vel paulum infundibuliformi, integro vel sublobato. Corolla 40 ad 45 mm longa, statu alabastri adulti supra partem basalem cylindricam 1 mm longam, 2.5 ad 3.5 mm latam in tertiam partem totius corollae 6 ad 7 (5 ad 6) mm latam inflata, deinde in tertiam partem mediam 6-angularem 3 ad 3.5 (2.5 ad 3) mm latam angustata, denique in clavam apicalem 6-angularem obtusam 4 ad 5 (3 ad 3.5) mm crassam incrassata, postae dehiscens in lacinias 6 e basi 2.5 (1.25) mm lata sensim ad 1 mm attenuatas

parte apicali anguste-spathulatas c. 2 (1.25) mm latas obtusas crassas (sectione transversa quadriangulas), parte supra insertiones filamentorum reflexas vel etiam paulum convolutae, basi in tubum c. 10 mm longum cohaerentes. Filamenti pars libera c. 2.5 mm longa; anthera 6 ad 8 mm longa, loculis 4 continuis. Stylus 40 ad 45 mm longus, supra basin articulatus, papillam 6-angularem brevem in fructu relinquens, 0.3 ad 0.5 mm crassus, in c. 13 mm superioribus sensim ad 0.6 mm incrassatus; stigma ellipsoides, c. 0.75 mm longum, 0.6 mm crassum. Fructus ignotus.

As in the description of *A. viridis*, I have given for the fleshy flowers of this species, after the dimensions of the flowers soaked in water, those of the flowers dried.

Amylotheca pentagona is closely related to *A. viridis;* it differs from the latter species chiefly by the triads racemosely arranged on the axis of the inflorescence and by the shorter pedicels of the triads and of the lateral flowers, but there are several less important differences, such as the smaller corolla with longer tube.

LUZON, Bontoc Subprovince, Bauco, 1,650 m, *Vanoverbergh 1254* (M, type, Be, cotype of *Loranthus pentagonus* Merr.), flowers yellowish.

II. Genus LEPEOSTEGERES Blume

Lepeostegeres (*Lepeosteogeres, Lepostegeres*) BLUME, in Schultes, Syst. 7 2 (1830) 1611, 1731; Fl. Javae Lor. (1830) 10; MIQ., Fl. Ind. Bat. 1 1 (1856) 833; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 143, 268; 42 (1895) 445, 449; Compt. Rend. As. Sc. Paris 153 (1911) 1196, 1198; GAMBLE, Journ. As. Soc. Beng. 75 (1914) 381 p. p.; MERR., Enum. Philip. Fl. Pl. 2 (1923) 101; RIDLEY, Fl. Mal. Pen. 3 (1924) 163 p. p.; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 291, 320; 11 (1931) 258; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 62; Rec. Trav. Bot. Néerl. 30 (1933) 469, ic. 2*a*.

Stegastrum VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1925) 447; Compt. Rend. Ac. Sc. Paris 153 (1911) 1196, 1198.

Choristega, Choristegeres VAN TIEGH., Compt. Rend. Ac. Sc. Paris 153 (1911) 1197, 1198.

Inflorescentia capitulum triadum, involucro e bracteis decussatis composito; bracteis interioribus triades exteriores ferentibus, bracteis ceteris et bracteolis florum lateralium nullis vel valde reductis, pedicellis nullis vel brevibus post anthesin prolongatis. Flores 6-meres, sympetali, regulares, corolla tubo brevi laciniis erectis supra insertiones staminum reflexis. Antherae

basifixae, angustae, acutae, loculis 4 continuis. Stylus paulum supra basin articulatus, fructui rostrum breve relinquens.

In the Philippine Archipelago the genus *Lepeostegeres* is represented by one species, which is spread from northern Luzon to southern Mindanao. Outside the Philippines the genus is represented by nine species inhabiting the western part of the Malay Archipelago, from Celebes to Sumatra and Java, and including the Malay Peninsula. The Philippine species differs from all others by a receptacle and pedicels growing out after flowering, and by bracts soon falling off.

1. LEPEOSTEGERES CONGESTIFLORUS (Merrill) Merrill.

Loranthus congestiflorus MERR., Philip. Journ. Sci. § C 4 (1909) 147; MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; ELMER, Leafl. Philip. Bot. 3 (1911) 1076.

Lepeostegeres congestiflorus MERR., Enum. Philip. Fl. Pl. 2 (1923) 101; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 321; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 63; Rec. Trav. Bot. Néerl. 30 (1933) 466.

Omnis glabra. Ramuli subrobusti, internodiis junioribus teretibus apice paulum applanatis et dilatatis, folia adulta ferentibus 2.5 ad 5 mm crassis, 1.5 ad 4 cm longis, vetustioribus teretibus nodis magis minusve incrassatis. Folia opposita vel rarius subopposita; petiolus difficile a lamina distinguendus, basi subteres supra paulum applanatus, laminam versus supra magis applanatus, 8 ad 15 mm longus; lamina plerumque elliptica vel obovato-elliptica ad oblonga vel obovato-oblonga, 5 ad 10 cm longa, 2 ad 5 cm lata, basi cuneata vel attenuata, maxima latitudine plerumque paulum supra medium, apice obtusa vel rotundata, crassiuscule coriacea, utraque facie opaca, penninervis raro basi triplinervis, costa supra indistincta subtus valde prominente rotundata vel subcarinata, nervis lateralibus crassioribus supra indistinctis subtus plerumque invisibilibus. Inflorescentiae singulae in axillis foliorum vel in nodis iam defoliatis, omnino sessiles; receptaculum tempore florendi conicum basi 3 ad 4 mm crassum, 3 ad 6 mm longum, parte inferiore plerumque 4 ad 5 (raro 7) paribus bractearum decussatarum iam ante tempus florendi partim deciduarum, exterioribus parvis interioribus gradatim majoribus et oblongioribus, deinceps breve reniformibus suborbicularibus ellipticis ovalibus, interioribus 20 ad 25 mm longis 12 ad 18 mm latis, omnibus dorso convexo apice rotundato; flores 18 ad 30 in 3 ad 5 paribus triadum decussatis dispositi; pedicelli triadum brevissimi ad 2 mm lati, florum mediorum

brevissimi, florum lateralium minus breves una cum pedicello triadis c. 2 mm longi; post anthesin pars receptaculi florifera prolongata ad 5 ad 8 mm longa, pedicelli florum mediorum brevissimi, lateralium ad 2 mm raro ad 4 mm longi. Calicis cylindricus vel pressione prismaticus, tubo 3 ad 3.5 mm longo, 1.25 ad 1.5 mm lato, limbo 0.25 ad 0.5 mm longo margine membranaceo integro vel irregulariter lacerato. Corolla statu alabastri adulti 23 ad 32 mm longa, supra basin ad 3 ad 4 mm dilatata dein sensim attenuata, ad tres quintas longitudinis c. 2 mm lata, parte apicali paulum incrassata, angularis, apicem obtusiusculum versus conice attenuata, postea in lacinias 6 dehiscens, tubum c. 2.5 mm longum relinquens; laciniae e basi c. 1 ad 1.25 mm lata sensim dimidiam longitudinem versus ad 0.5 mm attenuata, parte superiore c. 8 mm longa reflexae angustissime lanceolatae, apice crassiusculae et cucullatae. Filamenti pars libera 1 ad 1.75 mm longa; anthera 4 ad 5 mm longa, linearis, acuta, loculis 4 continuis, petalis c. 1 mm brevioribus. Stylus denique corolla 3 ad 4 mm longior, c. 0.5 mm supra basin articulatus, stigma versus sensim attenuatus; stigma subglobosum, c. 0.25 mm crassum. Fructus ellipsoides, quoad notus ad 7 mm longus 5 mm crassus, styli basi et calicis limbo paulum incrassato coronatus.

The specimens of *Lepeostegeres congestiflorus* from Luzon usually have the corollas hardly 30 mm long, and the involucral bracts in four or more, rarely in five pairs; the specimens from the southern islands have the corollas nearly 32 mm long and the involucral bracts often in six, sometimes even in seven pairs. In other features this species is rather uniform. It is endemic in the Philippines and occurs from northern Luzon to southern Mindanao. The color of the corolla is indicated on herbarium labels as greenish white, greenish yellow, or yellow.

LUZON, Mountain Province, Bontoc, *Vanoverbergh 1294* (G, L, U, Br, Be, distributed as cotypes of *Lepidaria tetrantha*, the type of which bears the same number): Lepanto Subprovince, Mount Data and vicinity, *Clemens 17792a* (UC); Mount Data, 2,250 m, *Bur. Sci. 40299 Ramos and Edaño* (M, UC, B, L): Benguet Subprovince, *Loher 4459* (M); Mount Ugo, *Bur. Sci. 5780 Ramos* (M, NY); Mount Pulog, mossy forest, *Merrill 6597* (M), *Bur. Sci. 8833 McGregor* (M, B), *Bur. Sci. 8888 McGregor* (M, NY, B, Be), 2,400 m, *Bur. Sci. 45013 Ramos and Edaño* (UC, NY, S), 2,700 m, *Bur. Sci. 44968, 45026 Ramos and Edaño* (M, NY, UC), hardwood forest, 2,400 m, *F. B. 18084 Curran*,

Merritt, and Zschokke (M, L), 2,700 m, *F. B. 18045 Curran, Merritt, and Zschokke* (M); Mount Santo Tomas, hardwood forest, 2,400 m, *F. B. 14183 Merritt* (M); Mount Tonglon, top, *F. B. 5037 Curran* (M), type of *Loranthus congestiflorus;* Mount Santo Tomas, *F. B. 11093 Whitford* (M), *McClure 16009* (M, UC), *Williams, 1343 bis* (NY), 2,100 m, *Williams 1344* (NY), top forest, *F. B. 10833 Curran* (M). MINDORO, Mount Halcon, 1,650 m elevation, *F. B. 4434 Merritt* (M). NEGROS, Canlaon Volcano, *Merrill 221* (M, U, Br). MINDANAO, Bukidnon Province, Mount Lipa, *Bur. Sci. 38539 Ramos and Edaño* (L): Davao Province, Mount Apo, Todaya, 2,500 m elevation, *Elmer 10634* (M, NY, B, U, L): Misamis Province, Mount Malindang (Mount Bliss), 1,700 m elevation, *F. B. 4769 Mearns and Hutchinson* (M).

III. Genus CYNE Danser

Cyne DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 291, 306; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 42; Rec. Trav. Bot. Néerl. 30 (1933) 470, ic. 2*b*.

Inflorescentia capitulum triadum, involucro calyptrato, deciduo vel irregulariter dehiscente, triadibus decussatis, floribus omnino sessilibus, bracteis bracteolisque bene evolutis. Corolla 6-meres, sympetala, tubo brevi; antherae basifixa, acutae, loculis 4 continuis.

The genus *Cyne* is endemic in the Philippines and is spread from central Luzon to southern Mindanao. Four species have been distinguished.

Key to the species of Cyne.

1. Young twigs quadrangular ..... 4. *C. quadriangula.*
   Young twigs terete ..... 2.
2. Coarse in all parts; leaves coriaceous, their petioles 2.5 to 5 mm broad, their fine veins invisible; twigs bearing full-grown leaves 3 to 5 mm thick; corolla 17 to 20 mm long ..... 1. *C. banahaensis.*
   Not coarse; leaves thin-coriaceous to chartaceous, their petioles 1 to 2 mm broad, their finer veins distinct; twigs bearing full-grown leaves 1.5 to 3 mm thick; corolla 13 to 16 mm long ..... 2. *C. alternifolia.*
   Compare also 3. *C. capitulifera,* with the young twigs cinnamomeous-furfuraceous.

1. CYNE BANAHAENSIS (Elmer) Danser.

Loranthus banahaensis ELMER, Leafl. Philip. Bot. 1 (1908) 288; MERR., Philip. Journ. Sci. § C 4 (1909) 145.
Loranthus lagunensis MERR., Philip. Journ. Sci. § C 9 (1914) 281.
Lepeostegeres banahaensis MERR., Enum. Philip. Fl. Pl. 2 (1923) 101 excl. specim.

Cyne banahaensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 306; Verh. Kon. Akad. Wetensch., Amsterdam afd. Natuurk. § 2 29 6 (1933) 43.

Omnis glabra. Ramuli robusti, internodiis junioribus teretibus, primo juventute paulum applanatis et incrassatis, postea apicem et basin versus incrassatis duplo crassioribus quam medio, folia adulta ferentibus 1.5 ad 9 cm longis, 3 ad 5 mm crassis, iam ante folia decidentia cortice rugoso et lenticelloso (non leproso nec cinnammeo) postea cicatricibus magnis rotundis foliorum et inflorescentiarum. Folia opposita vel subopposita; petiolus difficile a lamina distinguendus et valde variabilis, supra planus subtus rotundatus, 2 ad 20 mm longus 2.5 ad 5 mm latus, basi vix incrassatus; lamina elliptica ad oblonga vel oblongo-obovata, 4 ad 17 cm longa, 2.5 ad 10 cm lata, basi plerumque cuneata vel in petiolum attenuata, apice obtusissima vel rotundata, crasse vel tenuiter coriacea, utraque facie opaca, inferiore magis rufa quam superiore, costa et margine subtus saepe obscure colorata, penninervis, costa supra leviter subtus valde prominente, nervis lateralibus crassioribus supra distinctis subtus indistinctis, venis utrinque invisibilibus. Inflorescentiae basi lata omnino sessiles, raro ramulo adpressae vel impressae, receptaculo non supra ramuli superficien elevato, primum singulae in foliorum axillis, postea etiam juxta illarum cicatrices utrinque procrescentes; involucrum denique ovatum; flores in 3 paribus triadum decussatis dispositi, omnino sessiles; bracteae bracteolaeque suborbiculares, crassiusculae, calicibus adpressae et circiter aequilongae, dorso convexo, bracteae triadum exteriorum c. 2 mm longae, 3 mm latae, interiorum 1.5 mm longae et latae, bracteolae triadum exteriorum 1.5 ad 2 mm longae 1.5 mm latae, interiorum 1.5 mm longae, 1 mm latae. Calicis campanulatus, pressione angulatus, c. 2 mm longus, 1.5 mm latus, limbo brevissimo irregulariter lacerato. Corolla statu alabastri adulti 17 ad 20 mm longa supra basin inflata ad 3 mm lata, deinde ad dimidiam longitudinem sensim attenuata ad 1.5 mm lata, ceterum cylindrica apice obtusa, postea tubo c. 4 mm longo, laciniis basi 1.25 mm latis sensim ad 0.5 mm attenuatis, parte reflexa 3 ad 4 mm longa 0.75 mm lata angusta lanceolata apice crassiuscula. Anthera sessilis, linearis, apicem acutum versus sensim attenuata, 3 mm longa, loculis 4 continuis. Stylus subaequicrassus, corollae aequilongus, paulum supra discum articulatus; stigma capitatum obtusissimum, stylo vix sesquiplo

crassius. Fructus rotundato-ellipsoides, calicis limbo incrassato coronatus, maximus notus 8 mm longus, 5 mm latus.

Whereas the other species of *Cyne* are all indigenous to Mindanao, *C. banahaensis* is chiefly collected in Luzon, where it occurs at from 30 to 750 m elevation. The color of the corolla is indicated on the herbarium labels as yellow or yellow with red.

LUZON, Laguna Province, Dahican River, back of San Antonio, *Bur. Sci. 15064 Ramos* (M) type of *Loranthus lagunensis;* Mount Banahao, first camp, *Quisumbing 1259* (M) : Tayabas Province, Umiray River, 30 m elevation, *Bur. Sci. 28966 Ramos and Edaño* (M) ; Mount Banahao, Lucban, 740 m, *Elmer 9115* (M, NY, B, L, U) cotypes of *Loranthus banahaensis.* MINDANAO, Surigao, iron deposit, 600 m, *Bur. Sci. 34590 Ramos and Pascasio* (M).

2. CYNE ALTERNIFOLIA (Merrill) Danser.

Loranthus banahaensis ELM., Leafl. Philip. Bot. 3 (1911) 1075; 6 (1913) 1960, non Leafl. 1 (1908).

Loranthus alternifolius MERR., Philip. Journ. Sci. § C 9 (1914) 283.

Lepeostegeres alternifolius MERR., Enum. Philip. Fl. Pl. 2 (1923) 101.

Cyne alternifolia DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 306; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 42.

Omnis glabra. Ramuli graciles vel subrobusti, internodiis junioribus apicem versus applanatis et incrassatis, folia adulta ferentibus teretibus nodis magis incrassatis ad duplo crassioribus quam medio, 2 ad 6.5 cm longis, 1.5 ad 3 mm crassis, iam ante folia decidentia cortice rugoso, nec vero lenticellato nec leproso, postea cicatricibus magnis rotundis foliorum et inflorrescentiarum. Folia opposita vel rarius sparsa; petiolus difficile a lamina distinguendus, subtus valde supra leviter rotundatus, 1 ad 10 mm longus, 1 ad 2 mm latus, basi leviter incrassatus; lamina oblonga ad obovato-oblonga, rarius angustior, 5 ad 14 cm longa, 1.5 ad 5 cm lata, basi cuneata vel in petiolum attenuata, apice obtusissima vel rotundata, crassiuscule coriacea vel chartacea, utraque facie opaca vel sublucida, penninervis, costa supra leviter subtus valde prominente, nervis lateralibus crassioribus utrinque distinctioribus, venis partim visibilibus. Inflorescentiae basi lata omnino sessiles, saepe ramulo lateraliter adnatae denique cicatrices ovatas in ramulis relinquentes, receptaculo non supra ramuli superficiem elevato, primum singulae in axillis foliorum,

postae etiam juxta illarum cicatrices utrinque procrescentes; involucrum denique ovatum vel globosum, ad 9 mm longum 7 mm diametro; flores in paribus triadum 3 decussatis, omnino sessiles; bracteae bracteolaeque suborbiculares crassiusculae, calicibus adpressae et subaequilongae, dorso convexo, bracteae exteriores 1 ad 1.5 mm longae 1.5 ad 2 mm latae, bracteolae exteriores 1 mm longae et latae. Calicis campanulatus pressione angulatus, 1.5 mm longus, 1 mm latus, limbo brevi irregulariter lacerato membranaceo. Corolla statu alabastri adulti 13 ad 16 mm longa, supra basin ad 3 mm inflata, apicem obtusissimum versus sensim attenuata, postea tubo companulato c. 3 mm longo, laciniis e basi sensim attenuatis usque ad partem apicalem reflexam c. 4 mm longam lanceolatum apice obtusam incrassatam. Anthera sessilis c. 3.5 mm longa a basi ad apicem sensim attenuata, acuta, loculis 4 continuis. Stylus a basi ad apicem subaequicrassus, corollae aequilongus, paululum supra basin articulatus, stigma capitatum obtusissimum, styli apice sesquiplo crassis. Fructus ignotus.

Cyne alternifolia is not very different from *C. banahaensis*, and is perhaps a form of that species. The materials seen by me admit a distinction between the two species, but in that case we must refer to *C. alternifolia* a few specimens that are placed under *C. banahaensis* by Elmer and Merrill.

Cyne alternifolia is only collected in Mindanao. The flower color is described as yellow in the lower part, red in the upper part.

MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, in subalpine and alpine forests, *Elmer 14065* (M, NY, B, L): Davao Province, Mount Apo, Todaya, *Elmer 14079* (M, NY, B, L, U, Be): Zamboanga Province, opposite Olutanga Island, 30 m elevation, *F. B. 13295 Foxworthy, Demesa, and Villamil* (M, type, Be, cotype of *Loranthus alternifolius* Merr.).

3. CYNE CAPITULIFERA (Merrill) Danser.

Loranthus capituliferus MERR., Philip. Journ. Sci. § C 7 (1912) 264.
Lepeostegeres capituliferus MERR., Enum. Philip. Fl. Pl. 2 (1923) 101; (*-fer*) DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 321; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 62.
Cyne capitulifera DANS., Rec. Trav. Bot. Néerl. 30 (1933) 466.

Omnis glabra. Ramuli subrobusti, nodis paulum incrassatis, rugulosi et tenuiter cinnamomeo furfuracei, supra cicatrices foliorum cicatricibus magnis ovalibus capitulorum adnatorum;

internodia foliifera 3 ad 5 mm crassa. Folia opposita vel subopposita; petiolus basi teres, laminam versus supra sensim applanatus, difficile a lamina distinguendus, c. 6 ad 8 mm longus, 1.5 ad 2 mm latus; lamina oblonga vel oblongo-obovata, ad 12 cm longa, 5 cm lata plerumque minor, basi in petiolum attenuata, margine saepe irregulari, apice obtusissima vel rotundata, utraque facie opaca, crassiuscule coriacea, penninervis, costa supra plana distincta, subtus valde prominente, nervis lateralibus utrinque visibilibus non distinctis, venis invisibilibus. Inflorescentiae singulae in foliorum axillis, valde lateriter adnatae, cicatrices ovatas 10 ad 12 mm longas relinquentes; receptaculum planum non supra ramuli superficiem elevatum, 3 paria triadum decussata ferens; bracteae triadum exteriorum transverse ellipticae, c. 1 mm longae, 2.5 mm latae, bracteolae suborbiculares, c. 1 mm longae et latae, triadum interiorum minores. Calicis breve campanulatus, c. 2.25 mm longus, 2 mm latus, limbo brevissimo erecto paulum irregulariter dendato. Corolla statu alabastri adulti c. 18 mm longa, supra basin rotundatam c. 4 mm lata, versus duas tertias longitudinis sensim attenuata deinde cylindrica vel leviter coniformis 2 mm lata, post dehiscens in lacinias 6, tubo 4 ad 5 mm longo, laciniarum parte reflexa 3 ad 3.5 mm longa basi 1.5 mm lata apicem obtusissimum subcucullatum versus ad 0.75 mm attenuata. Anthera sessilis, c. 3 mm longa, a basi ad apicem acutum sensim attenuata. Stylus corolla 0.5 ad 1 mm longior, ima basi articulatus; stigma obtusissimum, styli apice aequicrassum. Fructus ignotus.

The materials of this species seen by me are very scanty and quite insufficient for a detailed description. The herbaria of Manila and Berlin each have one twig with a number of detached leaves; the Manila herbarium, moreover, has a receptacle with bracts and bracteoles attached to the twig, the Berlin herbarium a detached receptacle with bracts and bracteoles and four complete flowers. However, only the structure of the receptacle with the bracts and bracteoles is sufficient to show that this species is a *Cyne*. When Merrill describes the flowers as "quite enclosed by imbricated bracts" he must be in error, as the receptacle does not show, below the flowers, any scars of such bracts. Also Merrill underestimates, as in the other species of *Cyne*, the number of the flowers in the heads; the receptacles of this and other species clearly show three decussate pairs of triads; so the heads must have been 18-flowered, though probably less flowers were opened at the same time.

The materials are also sufficient to make it probable that *C. capitulifera* is specifically distinct from the other three species of this genus. From *C. quadriangula* it differs by the terete twigs; with *C. banahaensis* it agrees in the coarseness of the twigs and leaves, and the longer corolla; with *C. alternifolia* in the heads connate laterally with the adjacent internode; from both *C. banahaensis* and *C. alternifolia* it differs by the cinnamomeous, finely furfuraceous young twigs and the slightly thickened nodes.

MINDANAO, Zamboanga Province, Sax River, mountains back of San Ramon, 1,100 m elevation, *Merrill 8270* (M, type, Be, cotype of *Loranthus capituliferus* Merr.).

4. CYNE QUADRIANGULA Danser sp. nov.

Robusta, omnis glabra. Internodia folia adulta ferentia quadriangula, basi paulum applanata, apicem versus paulum dilatata et magis applanata, vetustiora teretescentia, 3 ad 5 mm longa, supra basin 3.5 ad 4 mm crassa, apice fere duplo latiora, lucida et laevia. Folia opposita; petiolus subtus magis convexa quam supra, difficile a lamina distinguendus, 6 ad 14 mm longus, medio c. 3 mm latus; lamina elliptica vel oblonga, saepe paulum obovata, 8 ad 14 cm longa, 3.5 ad 5 cm lata, e basi rotundata in petiolum contracta vel magis attenuata, apicem obtusiusculum versus breve acuminata, tenuiter coriacea fere chartacea, utraque facie opaca, penninervis, costa et nervis lateralibus crassioribus prominentibus, venis tenuioribus partim distinctis. Inflorescentiae in axillis foliorum singulae, etiam in nodis vetustioribus juxta cicatrices utrinque procrescentes, involucro ad 12 mm longo fere aequilato. Flores aperti ignoti. Cetera, quantum nota, ut in *C. banahaensi.*

This species differs from all others of its genus by its quadrangular shining young twigs and its acuminate leaves; with *C. banahaensis* it agrees by its coarseness, with *C. alternifolia* by its thinner leaves. Though open flowers are unknown, the materials extant appear sufficient to support a new species.

MINDANAO, Surigao Province, Bucas Grande Island, low altitude, *Bur. Sci. 35119 Ramos and Pascasio* (M) type, calyx green, petals chocolate color.

IV. Genus THAUMASIANTHES Danser

Thaumasianthes DANS., Rec. Trav. Bot. Néerl. 30 (1933) 464, ic. 1, 2*d*.

Inflorescentia capitata, receptaculo prolongato, bracteis decussatis, triadem florum vel superioribus triadem diminutam ferentibus. Flores omnes sessiles, bractea 1 et bracteolis 2 suffultis. Corolla sympetala, 6-meres. Antherae basifixae acutae, loculis 4 continuis.

The genus *Thaumasianthes* is endemic in the Philippines, and has been collected only in Samar and Leyte.

Key to the species of Thaumasianthes.

1. Outer bracts of the inflorescence broader than long; bracts of the second and fourth pair slightly keeled towards the apex. 1. *T. amplifolia.*

Outer bracts of the inflorescence longer than broad; bracts of the first and second pair keeled over the whole length..... 2. *T. ovatibractea.*

1. THAUMASIANTHES AMPLIFOLIA (Merrill) Danser.

Loranthus amplifolius Merr., Philip. Journ. Sci. § C 13 (1918) 277.

Lepeostegeres amplifolius Merr., Enum. Philip. Fl. Pl. 2 (1923) 101; Dans., Bull. Jard. Bot. Buitenzorg III 10 (1929) 320; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 62.

Thaumasianthes amplifolia Dans., Rec. Trav. Bot. Néerl. 30 (1933) 465, ic. 1.

Omnis glabra. Ramuli subrobusti, internodiis juvenilibus teretibus apicem versus paulum applanatis nonnunquam ancipitibus et dilatatis, folia adulta ferentibus 6 ad 10 mm longis, 2.5 ad 5 mm crassis, vetustioribus teretibus nodis incrassatis. Folia opposita; petiolus prope basin supra paulum subtus valde rotundatus, laminam versus magis applanatus, difficile a lamina distinguendus, 6 ad 16 mm longus; lamina late vel anguste ovata, 13 ad 20 cm longa, 6 ad 15 cm lata, sub basi late rotundata breve in petiolum contracta vel in foliis angustioribus basi magis cuneata, apice subobtusa vel subacuta, tenuiter coriacea, utraque facie opaca, inferiore (in herbario) magis rufa quam superiore, penninervis, costa et nervis lateralibus crassioribus utrinque distinctis, venis tenuioribus subtus tantum visibilibus. Inflorescentiae singulae in axillis foliiferis et defoliatis, omnino sessiles; receptaculum 4 mm longum, 1.5 mm crassum; bracteae in paribus 5 decussatis positae, cuneatae, angulis rotundatis, exterioribus magis latae quam longae, fere transverse ovales, c. 9 mm longae, 14 ad 18 mm latae, interiores gradatim angustiores intimae anguste spathulatae, parium primi, tertii et quinti convexae et gibbae non carinatae, secundi et quarti parte apicali

carinatae; bracteae florum lateralium triadum acute carinatae, 7 ad 9 mm longae bis 2 ad 2.5 mm latae; bracteae florum mediorum spathulatae c. 8 mm longae sub apice rotundata 1.25 mm latae; bracteolae variabiles, planae, 3 ad 7 mm longae, c. 1 mm latae. Calicis tubus parte inferiore cylindrica 2 mm longa, 0.75 mm lata et parte superiore cupuliformi 1 mm longa, 1.5 mm lata; limbus mebranaceus, irregulariter laceratus, c. 0.5 mm longus. Corolla statu alabastri adulti c. 21 mm longa, supra partem basalem anguste cylindricam ad 5 mm inflata, deinde attenuata subcylindrica sulcis 6, apice obtusissima fere truncata, statu aperta tubo c. 7 mm longo basi vix 1 mm apice 3 mm lato, e basi c. 1.25 mm lata sensim attenuatis, c. 4 mm sub apice reflexis, sub flexura c. 0.3 mm latis, supra flexurum naviculatis crassiusculis obtusis c. 0.5 mm latis. Filamenti pars libera 0.25 ad 0.75 mm longa; anthera linearis acuta c. 2 ad 2.5 mm longa, loculis, 4 continuis. Stylus corolla aequilongus, c. 0.3 mm crassus, sub stigmate ad dimidiam crassitudinem attenuatus; stigma globosum stylo aequicrassum. Fructus ignotus.

SAMAR, Catbalogan, 28 m elevation, *Bur. Sci. 17448 Ramos* (M, type, L, cotype of *Loranthus amplifolius* Merr.), flower red, but petals green and yellow; Loquilocon, 250 m elevation, *Bur. Sci. 43843 McGregor* (M, UC, NY), flower green at base, pink at top. LEYTE, Mount Abucayan, *Bur. Sci. 41765 Edaño* (B, L).

2. **THAUMASIANTHES OVATIBRACTEA (Merrill) Danser.**

Loranthus ovatibracteus MERR., Philip. Journ. Sci. § C 13 (1918) 278.

Lepeostegeres ovatibracteus MERR., Enum. Philip. Fl. Pl. 2 (1923) 101; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 321; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 63.

Thaumasianthes ovatibractea DANS., Rec. Trav. Bot. Néerl. 30 (1933) 466.

"A parasitic, glabrous shrub, the branches and branchlets terete, the former pale- the latter dark-brown, smooth, the internodes 2 to 5 cm long. Leaves opposite, oblong-ovate, coriaceous, shining, 12 to 15 cm long, 5.5 to 7.5 cm wide, narrowed upward to the obtuse apex and below to the acute or somewhat decurrent-acuminate base, the upper surface dark brownish-olivaceous, the lower surface pale-brownish; lateral nerves 6 to 8 on each side of the midrib, slender, very obscure, often evanescent, the secondary nerves and reticulations obsolete; petioles 5 to 8 mm long. Heads axillary, sessile, 12- to 15-flowered, the outer four bracts

ovate, coriaceous, acute, more or less keeled, about 13 mm long, the bracteoles subtending the triads elliptic to oblong-elliptic, keeled, 7 to 11 mm long, 3.5 to 6 mm wide. Flowers 6-merous, red, sessile, each triad subtended by a bracteole. Calyx cylindric, somewhat thickened upward, 3 mm long, the limb produced about 1 mm, somewhat spreading, thin, more or less crenate-lacerate. Corolla in bud about 18 mm long, cylindric, somewhat enlarged in the median portion, the lobes wholly united for the lower 5 mm, the free parts 1.5 mm wide below, narrowed upward, the part above the insertion of the anther linear, reflexed, 3.5 mm long, acute. Anther linear, subsessile, 2.5 mm long."

As the only specimen of this species seen by me is the type specimen in the Philippine National Herbarium, and this is not sufficient to improve Merrill's original description, I cite the latter without alterations, though I doubt that Merrill describes the bracteoles correctly. On one hand the inflorescences of the type specimen were too much damaged to state with certainty that this species really belongs to *Thaumasianthes;* on the other hand, the resemblance to *T. amplifolia* is so great that it seems doubtful that *T. ovatibractea* can be kept separated from that species. The differences from *T. amplifolia* that I could discover on the type specimen of *T. ovatibractea* are the following: The dimensions of twigs and leaves are smaller; the internodes are 1.5 to 5.5 cm long, the largest leaves are 15 cm long, 7 cm broad; moreover, the leaves are somewhat thicker-coriaceous. The four outer involucral bracts are ovate and all of them keeled over the whole length, the outer ones are hardly 10 mm long and 7 mm broad. The flowers are somewhat narrower and slenderer, the reflexed part of the petals and the free part of the filaments about 0.5 mm shorter.

SAMAR, Camaniwan, on Catubig River, 55 m altitude, *Bur. Sci. 24135 Ramos* (M, type of *Loranthus ovatibracteus* Merr.).

V. Genus MACROSOLEN Blume

Macrosolen BLUME, in Schult., Syst. 7 2 (1930) 1731; MIQ., Fl. Ind. Bat., 1 1 (1856) 827; Suppl. Sum. (1860) 138, 346; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 143, 268; 42 (1895) 438, 442, 449; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 291, 343, 358, 364; 11 (1931) 271; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 91.

Tristerix MART., Flora 1 (1830) 108, p. p., non Blume (1830).

Blumella p. p. and *Miquelina* VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 438, 441, 443, 449.

Inflorescentia racemosa vel spicata, rarius umbellata vel subcapitata, floribus bractea 1 bracteolisque 2 liberis vel connatis. Flores 6-meres, sympetali; corolla tubo magis minusve dilatato supra carinis 6 cum petalis alternatibus, statu alabastri apicem versus primum in collum attenuata deinde in clavam terminalem incrassata, postea usque ad carinas dehiscens in lacinias 6 recurvatas spathulatas. Antherae basifixea, obtusae, loculis 4 plerumque continuis rarius locellatis. Stylus supra basin articulatus, frustui rostrum breve relinquens.

Macrosolen is chiefly spread in the southeastern part of the Asiatic Continent and the northern and western parts of the Malay Archipelago; few species occur in the central portion of this archipelago and one species is found in New Guinea. In the Philippines eleven species may be distinguished, ten of which are endemic.

Key to the Philippine species of Macrosolen.

1. Flowers pedicellate, in racemes or umbels ..... 2.
   Flowers sessile on the tip of a common peduncle ..... 7.
2. Corolla nearly 65 mm long ..... 6. *M. Acunae.*
   Corolla 12 to 20 mm long ..... 3.
3. Corolla lobes outside near the tip with an appendage, the six appendages forming a small crown round the tip of the bud; twigs flattened-quadrangular ..... 3. *M. curtiflorus.*
   Corolla lobes without such an appendage; young twigs terete or flattened, but not quadrangular ..... 4.
4. Corolla nearly 18 mm long ..... 5.
   Corolla, at most, 15 mm long ..... 6.
5. Flowers in a short raceme, very shortly pedicelled ..... 4. *M. Demesae.*
   Flowers in a 4-flowered umbel ..... 5. *M. bellus.*
6. Calyx with cylindrical tube and spreading limb; leaves very small, acute at the base and the apex ..... 2. *M. surigaoensis.*
   Calyx with ellipsoidal tube and infundibuliformous limb; leaves larger and usually differently shaped ..... 1. *M. cochinchinensis.*
7. Corolla nearly 65 mm long ..... 11. *M. subsessilis.*
   Corolla 12 to 16 mm long ..... 8.
8. Twigs sharply flattened-quadrangular ..... 10. *M. angulatus.*
   Twigs terete ..... 9.
9. Inflorescence 3- or 4-flowered; style articulate about 2 mm above the base ..... 7. *M. Mcgregorii.*
   Inflorescence 2-flowered; style base shorter ..... 10.
10. Leaves very different above and below, petioled, the lamina narrowed into the petiole ..... 8. *M. geminatus.*
    Leaves nearly alike above and below, sessile with rounded base. 9. *M. Worcesteri.*

1. MACROSOLEN COCHINCHINENSIS (Loureiro) Van Tieghem.

Loranthus cochinchinensis LOUR., Fl. Cochinch. (1790) 195.

Loranthus sphaerocarpus BLUME, Verh. Bat. Genootsch. 9 (1823) 189; FER.-VILL., Nov. App. (1880) 184; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112.

Loranthus globosus ROXB., Fl. Ind. ed. 1 2 (1824) 206; FER.-VILL., Nov. App. (1880) 184; VIDAL, Revis. Pl. Vasc. Philip. (1886) 230.

Loranthus ampullaceus ROXB., Fl. Ind. ed. 1 2 (1824) 209; FER.-VILL., Nov. App. (1880) 184; VIDAL, Pl. Cuming. Philip. (1885) 76, 140; MERR., Philip. Journ. Sci. § C 4 (1909) 145 excl. specim.

Loranthus patulus JACK, in Roxb. Fl. Ind. ed. 1 2 (1824) 214.

Loranthus viridiflorus WALL., in Rox. Fl. Ind. ed. 1 2 (1824) 219.

Loranthus subumbellatus BLUME, Bijdr. 13 (1825) 662.

Loranthus carinatulus DC., Mém. Lor. (1830) 26, t. 3; FER.-VILL., Nov. App. (1830) 184; MERR., Enum. Philip. Fl. Pl. 2 (1923) 111.

Loranthus subglobosus and *oleoides* DC., Prodr. 4 (1830) 297.

Loranthus pallens DC., Prodr. 4 (1830) 297; FER.-VILL., Nov. App. (1880) 184.

Tristerix viridiflorus MART., Flora 1 (1830) 109.

Loranthus oleifolius SCHULT., Syst. 7 2 (1830) 1650 nom. nud.

Elytranthe ampullacea G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 425; MERR., Philip. Journ. Sci. Suppl. 1 (1906) 50; Spec. Blanco. (1918) 132.

Elytranthe carinatula, viridiflora, subglobosa, pallens, oleoides, globosa, sphaerocarpa, patula, subumbellata G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 426–427.

Elytranthe cochinchinensis G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 426; MERR., Enum. Philip. Fl. Pl. 2 (1923) 100 excl. specim.

Hillia longiflora BLANCO, Fl. Fil. ed. 1 (1837) 235.

Macrosolen sphaerocarpus, pallens, oleoides, patulus MIQ., Fl. Ind. Bat. 1 1 (1856) 830–831.

Macrosolen ampullaceus ETTINGSH., Denkschr. Akad. Wissensch. Wien, Math.-Naturwiss. Cl. 32 (1872) 76.

Macrosolen cochinchinensis VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 122; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 343; 11 (1931) 279.

Macrosolen carinatulus, viridiflorus, subumbellatus, globosus VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 442.

Loranthus sphaerocephalus WURTH, Versl. Vezelcongr. 1 2 (1911) 92.

Elytranthe Barnesii GAMBLE, Kew Bull. (1913) 45.

Loranthus Elmeri MERR., Philip. Journ. Sci. § C 9 (1914) 285.

Loranthus tribracteatus RIDLEY, Journ. Fed. Mal. St. Mus. 8 4 (1917) 31.

Elytranthe Elmeri MERR., Enum. Philip. Fl. Pl. 2 (1923) 101.

Macrosolen tribacteatus DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 346.

For a more extensive list of literature see Bull. Jard. Bot. Buitenzorg III 11: 279–282.

Glabra vel inflorescentiis floribusque densissime puberulis; subgracilis, ramosissima, stolonibus plantae nutrici affixa. Internodia juvenilia teretia, nodis applanatis et incrassatis, folia adulta ferentia 1 ad 3 mm crassa, vetustiora teretia nodis incrassatis. Folia opposita vel subopposita; petiolus teres, facie superiore laminam versus applanatus, 3 ad 8 mm longus, 1 ad 2.5 mm crassus; lamina coriacea, late elliptica ad lanceolata vel paulum ovata, plerumque 4 ad 12 cm longa, 2 ad 7 cm lata, basi cuneata vel rotundata, apicem subobtusum versus magis vel minus acuminata, supra lucida vel semilucida raro opaca, subtus opaca, penninervis, costa supra plana vel paulum prominente subtus valde prominente, nervis lateralibus in planta viva supra tantum, in herbario etiam subtus distinctis. Inflorescentiae plerumque in axillis foliorum singulae et in nodis vestustioribus numerosiores, racemi floribus decussatis vel superioribus umbellatim congestis; axis teres 0.5 ad 2.5 cm longus, basi bene 1 mm crassus apicem versus tenuior; pedicelli 0 ad 6 mm longi, 0.5 ad 0.7 mm crassi, bractea rotundato-ovata, acuta vel breve acuminata, c. 1 mm longa et lata; bracteolae c. 0.5 mm longae, suborbiculares, liberae vel magis minusve connatae. Calicis tubus breve ellipsoides, c. 2.5 mm longus, 2 mm latus, sub limbo distincto sed brevi ad 0.5 mm longo integro vel 6-lobato contractus. Corolla statu alabastri adulti 8 ad 15 mm longa, dimidia parte inferiore inflata, basi rotundata, sub medio carinis acutis 6, medio subabrupte attenuata in collum 1 ad 1.5 mm crassum, deinde in clavam obtusissimam incrassata, postea laciniis recurvatis linearibus paulum spathulatis crassiusculis cucullatis. Anthera c. 0.5 mm longa. Stylus corollae aequilongus; stigma clavatum. Fructus globosus vel subglobosus, denique 6 ad 7 mm longus, 6 mm crassus, styli basi et calicis limbo coronatus; semen ellipsoides.

The color of the corolla is, after my observations on living Java specimens, yellow or greenish yellow, often, however, more or less tinged with red, and always with a more or less distinct dark violet-brown girdle at the base of the neck of the bud. The fruit is, in the ripe state, first green, then yellow, at length dark brown-violet, but it is usually eaten by birds before it has its final color.

This species, common in the tropical southeastern part of the Asiatic Continent and the western part of the Malay Archipelago, is, in the Philippines, restricted to central and southern Luzon, and Palawan; a few specimens, recorded by me for

Mindanao, are insufficient for certain determination, but it is doubtful that *M. cochinchinensis* occurs also in that island.

Philippines, without exact locality, *Cuming 2343* (Be); "Mandaloyon," *Comisión de la Flora Forestal de Filipinas 545* (L). LUZON, Nueva Ecija Province, 100 m elevation, *F. B. 8459 Curran* (M): Bataan Province, Lamao River, near Lamao, *Whitford 86* (M, Be): Bulacan Province, Angat, *Bur. Sci. 76578 Quisumbing* (M): Rizal Province, Santa Ines, *Bur. Sci. 26206* (M); Antipolo, *F. B. 479 Ahern's collector* (M, B, S); Bosoboso, *Bur. Sci. 979 Ramos* (M, B, Be), *Merrill, Sp. Blancoanae 1033 Ramos* (M, NY, B, L): Cavite Province, Alfonso, 150 m elevation, *Bur. Sci. 22568 Ramos and Deroy* (M, NY, B, S, L): Laguna Province, Aleng Malawin Loop, *F. B. 24917 Mabesa* (M); Los Baños, 100 to 120 m elevation, *F. B. 26899 Mabesa* (M); Mount Maquiling, Los Baños, *Elmer 17508* (M, B, L, U) and *17745* (M, UC, B, L, U): Batangas Province, Tanauan, *Aldaba s. n.* (M). MINDANAO, Bukidnon Province, Mount Dumalucpihan (Mount Bunanan), 1,300 m elevation, *Bur. Sci. 39003 Ramos and Edaño* (M): Lanao Province, Dipolog, 20 m, *F. B. 30246 Roque* (M, UC, NY). PALAWAN, *F. B. 3581 Curran* (M); Taytay, *Merrill 9207* (M, NY, B, L, S); Puerto Princesa, Mount Pulgar, *Elmer 12749* (B, NY, L, U, Be, cotypes of *Loranthus Elmeri* Merr.) and *13138* (M, NY, B, U, L, Be).

This species has a further distribution in the tropical part of southeastern Asia, including the Malay Peninsula, and the western part of the Malay Archipelago from Sumatra and Java to Celebes.

2. **MACROSOLEN SURIGAOENSIS (Elmer) Danser.**

Loranthus surigaoensis ELMER, Leafl. Philip. Bot. 6 (1913); MERR., Enum. Philip. Fl. Pl. 2 (1923) 110.

Macrosolen surigaoensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 345; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 94.

"Stems ascending, branched from near the base, bendable; wood whitish and pith brown, covered with a smooth brown bark. Leaves opposite, copious, ascending, thickly coriaceous, blackish when dry, flat, often appearing somewhat inequilateral entire, sharply or bluntly acuminate, the larger ones 4 cm long by 1.25 cm wide across the middle or just below it, base obtuse or cuneata, glabrous, midrib black and conspicuous beneath; lateral ascending nerves about 3 to 4 on each side and very minute or obscure, reticulations none; petiole 3 to 5 mm long, similar to the midrib in color both in the fresh and in the dry state.

Peduncles ascending, strict, slender, solitary or in axillary pairs, less than 1 cm long, glabrous, normally terminated by 2 divaricate flowers; pedicel 1–3 mm long, articulate at the base, terminated by a broadly 3-toothed cupular rim; calyx cylindric, glabrous, green, solitary and sessile, its rim relatively broad and truncate, bud corolla 1.25 cm long, glabrous, ovately elongated, striately ridged on the exterior, apparently becoming 6-segmented, the distal portion becoming reflexed; stamens 6, opposite the segments and inserted upon the throat, anthers introrse, style smooth, as long as the corolla with stamens, terete and fleshy, slightly thickened toward the greenish stigma."

Of this species I have only seen some fragments of a cotype in the Philippine National Herbarium, Bureau of Science, Manila, insufficient to base a description upon. For this reason I copy nearly entirely Elmer's original description.

Macrosolen surigaoensis differs from *M. cochinchinensis* by thin twigs and small leaves, which are, moreover, relatively narrower and dull on both surfaces; the peduncles bear only two flowers on their tip; the bracts and bracteoles are roundish, very obtuse and the bracteoles are connate, but the bract is not connate with the bracteoles; the calyx is cylindric, the limb strikingly long in relation to the tube, and spreading; the corolla is, according to Elmer, only 12.5 mm long, this agreeing only with the smallest flowers in *M. cochinchinensis*.

MINDANAO, Agusan Province, Mount Urdaneta, 1,875 m elevation, *Elmer 14098* (M), cotype.

3. MACROSOLEN CURTIFLORUS (Elmer) Danser.

Loranthus curtiflorus ELMER, Leafl. Philip. Bot. 6 (1913) 1964; MERR., Enum. Philip. Fl. Pl. 2 (1923) 104.

Macrosolen curtiflorus DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 344; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 92.

Glabra. Ramuli subgraciles, internodiis juvenilibus e basi terete vel paulum applanata apicem versus magis applanata denique applanate quadriangulis, folia adulta ferentibus 15 ad 25 mm longis, supra basin 1.25 ad 1.5 mm crassis apice c. 4 mm latis, vetustioribus teretibus nodis incrassatis. Folia opposita vel subopposita; petiolus e basi subtereti laminam versus supra sensim applanatus, difficile a lamina distinguendus c. 5 ad 8 mm longus; lamina elliptica, plerumque 3 ad 5 cm longa, 1.5 ad 3 cm lata, e basi cuneata paulum in petiolum decurrens, apice obtusa subrotundata, tenuiter coriacea, utraque facie opaca, penniner-

vis, costa facie inferiore valde prominente carinata, superiore minus prominente rotundata, nervis ceteris omnibus subtus distinctis, supra minus distinctis. Inflorescentiae singulae in axillis foliorum, racemi paribus 2 florum decussatis nonnunquam in umbellam congestis, nodis valde articulatae; pedunculus 6 ad 10 mm longus, vix 1 mm crassus, cum axi cetero vix 0.5 mm crasso 0 ad 5 mm longo apicem versus paulum incrassato et applanato teres; pedicelli 2 ad 3 mm longi, raro breviores, 0.6 ad 0.75 mm crassi, apice paulo crassiores quam basi; bractea ovata late affixa carinata 1.5 ad 2 mm longa, obtusa vel acuta; bracteolae c. duas tertias longitudinis bracteae attingentes, obtusiores, ad dimidiam longitudinem connatae. Calicis tubus cylindricus, c. 2.5 mm longus, 1 mm latus; limbus infundibuliformis, c. 1 mm longus subinteger. Corolla statu alabastri adulti c. 15 mm longa, in duabus tertiis partibus inferioribus ellipsoiditer inflata ad 4 mm lata, tertia parte superiore circiter cylindrica vel 6-angularis, in dorso cuiusque laciniae prope apicem appendice quadrata vel paulum cuneata, appendicibus 6 in alabastro coronulam integram vel leviter lobatam formantibus; "the segments 6, separating down to the middle and ultimately to the base, linearly oblong." Anthera "nearly 3 mm long, truncately rounded at apex." Stylus articulatus supra basin, rostrum c. 0.75 mm longum in fructu relinquens; stigma "flattened capitate." Cetera ignota.

The most peculiar character of *M. curtiflorus* is the crown around the tip of the flower bud, formed by appendages on the back of the corolla lobes. Such appendages also occur in other Loranthaceæ, among the Philippine species in *Amyema verticillata*, among the African species in the species of *Tapinanthus* which Van Tieghem placed in his genera *Acrostephanus* and *Stephaniscus*, such as *Tapinanthus gabonensis, T. Buchneri, T. dependens, T. ogowensis*, and *T. Poggei*. Another peculiar character of *M. curtiflorus*, by which it is easily distinguished from *M. cochinchinensis*, is the young internodes flattened-quadrangular toward the apex.

MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, 1,800 m elevation, *Elmer 14089* (M, cotype).

4. MACROSOLEN DEMESAE (Merrill) Danser.

Loranthus Demesae MERR., Philip. Journ. Sci. § C 9 (1914) 280; Enum. Philip. Fl. Pl. 2 (1923) 104.

Macrosolen Demesae DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 344; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 93.

Glabra, subgracilis, ramosissima, stolonibus 1.5 ad 4 mm crassis plantae nutrici affixa. Internodia juniora teretia, nodis paulum applanatis, quae folia adulta ferunt 3 ad 6 cm longa, 1.5 ad 3 mm crassa, vetustiora teretia nodis incrassatis. Folia opposita, subsessilia, rotundato-ovata, 4 ad 9 cm longa, 2.5 ad 6 cm lata, basi rotundata vel levissime cordata, apicem versus breve acuminata, tenuiter coriacea, utraque facie opaca, penninervia, costa facie inferiore valde superiore leviter prominente, nervis lateralibus omnibus utraque facie visibilibus superiore paulo distinctioribus quam inferiore. Inflorescentiae racemi breves axillares, paribus 2 vel 3 florum; axis pauca mm longus, 1 mm crassus; pedicelli c. tam longi quam crassi; bractea brevissime triangulatis acuta; bracteolae in unam reniformem connatae, brevissimae. Calicis tubus ellipsoides, 2 mm longus, vix mm 1 latus, apice non contractus, sensim in limbum infundibuliformen integrum c. 0.3 mm longum ampliatus. Corolla 16 ad 18 mm longa; tubus c. 0.6 totius longitudinis attingens, ellipsoides, apice carinis 6 acutis; laciniae e basi usque ad dimidiam ipsarum longitudinis attenuatae deinde in partem apicalem lanceolatam 0.6 mm latam crassiusculam apice incrassatam obtusam dilatatae. Filamenti pars libera c. 1.5 mm longa; anthera c. 2 mm longa, obtusa. Cetera ignota.

Allied to the following species.

MINDANAO, Zamboanga Province, Talisay, 40 to 50 m elevation, *F. B. 13788 Foxworthy, Demesa, and Villamil* (M, type), flower red.

5. MACROSOLEN BELLUS Danser sp. nov. Plate 1, figs. 3 and 4.

Subrobusta, ramosissima, omnis glabra. Internodia teretia, quae folia ferunt 2 ad 6 cm longa, 1.5 ad 3 mm crassa, apicem versus paulum incrassata. Folia opposita vel subopposita; petiolus difficile a lamina distinguendus, parte alata inclusa 4 ad 7 mm longus basi teres, laminam versus supra sensim applanatus, prope laminam ad 3 mm lata, supra plana subtus convexa; lamina oblonga vel paulum ovata, 5 ad 10 cm longa, 2 ad 4 cm lata, basin decurrentem et apicem obtusum versus cuneata, tenuiter coriacea, facie superiore lucida inferiore opaca, costa subtus valde prominente supra leviter convexa, nervis lateralibus crassioribus venisque facie inferiore distinctis superiore minus distinctis vel invisibilibus. Inflorescentiae singulae in axillis superioribus et paucae in axillis inferioribus, etiam gregatim in nodis defoliatis, umbellae pedunculatae paribus florum 2 raro 1; pedunculus 1 ad 6 mm longus, teretes, 0.5 ad 0.75 mm crassus,

basi apiceque leviter incrassatus; pedicelli 1 ad 1.5 mm longi, teretes; bracteae ovatae acutae vel obtusae, convexae, c. 1 mm longae; bracteolae minores. Calicis oblongo-ovatus, c. 3 mm longus basi rotundatus, ad tertiam partem longitudinis c. 1 mm latus, deinde sensim attenuatus et denique sensim in limbum 0.5 ad 1 mm longum integrum vel leviter lobatum ampliatus. Corolla statu alabastri adulti c. 19 mm longa, a basi rotundata usque ad duas quintas longitudinis ellipsoiditer ad c. 5 mm ampliatus apice partis inflatae carinis 6 distinctis, deinde in collum 1.5 ad 2 mm latum attenuata, denique in clavam 6-angulam subobtusam incrassata, postea usque ad carinas dehiscens in lacinias 6 recurvatas lanceolatas apice crassiusculas acutas. Filamenti pars libera c. 3 mm longa; anthera c. 2.5 mm longa. Stylus tertia parte superiore paulum crassior, c. 1 mm supra basin articulatus, rostrum prismaticum in fructu relinquens; stigma subglobosum. Cetera ignota.

Among the Philippine species *M. bellus* is closely related only to *M. Demesae,* but the latter species differs from it by more racemose inflorescences, shorter-pedicelled flowers, smaller bracts, different dimensions of the flowers, and different leaves. Among the species of the western Malay Archipelago *M. tenuiflorus,* from Borneo, *M. Lowii,* from the Malay Peninsula, and *M. sumatrana,* from Sumatra, are more closely related.

CATANDUANES, back of Calolbong, summit in forest, 300 m elevation, *Bur. Sci. 30447 Ramos and Chan* (M), type, climbing on tree, flower red, with five blue petals, and yellow inside.

6. MACROSOLEN ACUNAE (Merrill) Danser.

Elytranthe acuñae MERR., Philip. Journ. Sci. § C 13 (1918) 279; Enum. Philip. Fl. Pl. 2 (1923) 100.

Macrosolen Acunae DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 343; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 91.

Glabra vel inflorescentiis et alabastris juvenilibus breve denseque papillosis; valde robusta. Internoda juniora teretia, versus nodos foliatos paulum applanata; ramulorum partes inter 2 paria foliorum normalium 6 ad 12 cm longae, 3 ad 7 mm crassae, internodia vetustiora teretia nodis incrassatis. Folia opposita, paribus foliorum normalium plerumque cum paribus abortivorum alternantibus; folia abortiva vix visibilia, ad squamulas minimas reducta; folia normalia magna; petiolus 5 ad 7 mm longus, lateraliter applanatus, supra leviter canaliculatus sub-

tus rotundatus; lamina ovato-oblonga vel ovato-lanceolata, 16 ad 37 cm longa, 5 ad 13 cm lata, basi cuneata ad leviter cordata, apicem acutum versus sensim attenuata vel magis acuminata, nonnunquam in acumen longum protracta, crassiuscule coriacea, utraque facie opaca, penninervis, costa subtus valde supra leviter prominente, nervis lateralibus supra leviter subtus magis prominentibus, venis utrinque subdistinctis. Inflorescentiae racemi breves densi, singulae vel paucae in axillis foliorum adultorum et gregatim in nodis defoliatis, etiam in nodis folia abortiva ferentibus ramulorum vetustiorum; axis 1 ad 1.5 cm longus, supra basin paulum incrassatam c. 2 mm crassus, apicem versus sensim attenuatus, 2 ad 3 mm inferioribus nudus, ceterum paribus 6 ad 8 confertis descussatis florum; pedicelli florum inferiorum c. 2 mm longi, superiorum paulo breviores; bracteae ovatae acutae vel valde acuminatae, dorso rotundatae vel carinatae acutae ad 2 mm acuminatae, ad 4 mm longae, 1.5 ad 1.75 mm latae; bracteolae vix 2 mm longae, non acuminatae, in unam suborbicularem bicuspidatam connatae. Calicis tubus cylindricus, c. 3.5 mm longus, 1 mm latus; limbus cupulatus, 1 mm altus, supra 2.5 mm latus, indistincte dentatus. Corolla statu alabastri adulti c. 65 mm longa, e basi c. 1 mm lata ad tertiam partem longitudinis ad 4 mm ampliata, deinde ad 3 quartas longitudinis subcylindrica, ibi paulum attenuata et carinis 6 c. 1 mm latis, deinde in collum 2.5 mm latam attenuata, denique in clavam terminalem ellipsoidem 6-alatam obtusam 8 mm longam 4 mm latam inflata, postea usque ad carinas dehiscens in lacinias 6 recurvatas, parte reflexa oblonga acuta dorso concava facie anteriore sulca in qua anthera quadrat. Filamenti pars libera c. 6 mm longa; anthera c. 4 mm longa basi nonnihil sagittata, apice obtusa, loculis 4 continuis. Stylus filiformis, corolla aequilonga; stigma globosum, styli apice duplo crassius. Cetera ignota.

The most beautiful among all Philippine Loranthaceæ. Most remarkable are the pairs of rudimentary leaves, with which the pairs of normal leaves usually alternate and which also occur in several other species of *Macrosolen*, such as the Bornean *M. curvinervis* and *M. borneanus*. In general the greatest resemblance is with *M. Beccarii*, from Borneo, which, however, has much shorter corollas (25 to 35 mm long) and differs from *M. Acunae* in several minor characters.

I have not seen the type of the species. However, the specimens on which I based the above description agree so well with

the original description, and also the localities where they were collected agree so well with that of the type, that the differences (the type is described with flowers 50 mm, free part of the filament 8 mm, anther 2.3 mm long) seem unimportant.

MINDANAO, Zamboanga Province, Malangas, low altitude, *Bur. Sci. 37413 Ramos and Edaño* (M, Be), flower blood red and yellow; Malangas, Dipacan River, low altitude, *Bur. Sci. 37404 Ramos and Edaño* (M, Be), flower red: Lanao Province, Titunod, along Libas Creek, low altitude, *F. B. 23386 Acuña*, type, not seen by me.

7. MACROSOLEN MCGREGORII (Merrill) Danser.

Loranthus mcgregorii MERR., Philip. Journ. Sci. § C 4 (1909) 146; Enum. Philip. Fl. Pl. 2 (1923) 106.

Macrosolen Mcgregorii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 345; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 93.

Glabra. Internodia juniora teretia nodis incrassatis, novissimis etiam paulum applanatis, quae folia adulta ferunt 1.5 ad 4 cm longa, 1 ad 3.5 mm crassa. Folia opposita sessilia, ovato-oblonga ad ovato-lanceolata, c. 6 ad 8 cm longa, 2 ad 3.5 cm lata, basi rotundata vel cuneata, maxima latitudine plerumque paulum sub medio, apice obtusa vel obtusissima, tenuiter coriacea, faciebus vix distinctis, utrinque costa et nervis lateralibus crassioribus prominentibus distinctis, venis invisibilibus. Inflorescentiae singulae vel paucae in axillis, pedunculo c. 5 longo, 0.5 ad 0.75 mm crasso, apice basique paulum incrassato apice 3 vel 4 floribus sessilibus; bractea bracteolaeque suborbiculares, bractea c. 1.25 mm longa, bracteae paulo breviores in unam late reniformem apicibus 2 rotundatis connatae. Calicis tubus cylindricus, 2.5 ad 3 mm longus, 1 ad 1.25 mm latus; limbus 0.5 ad 0.75 mm longus, infundibuliformis, integer. Corolla crassiuscula, statu alabastri adulti 13 ad 15 mm longa, supra basin rotundatam dimidia parte inferiore ellipsoiditer inflata ad 4 mm lata, deinde in collum breve 6-angulum attenuata, denique in clavam obtusissimam 6-angulam incrassata, postea in lacinias 6 dehiscens, tubum c. 4 mm longum relinquens, laciniis e basi 1.5 mm lata ad dimidiam latitudinem attenuatis et in partem superiorem lanceolatam c. 0.75 mm latam, apice crassisculam, acutiusculam, dilatatis. Anthera subsessilis, 3 ad 3.5 mm longa, obtusa, loculis 4 continuis. Stylus c. 2 mm supra basin articulatus; stigma globosum, stylo c. duplo crassius. Fructus (probabiliter immaturus) ellipsoides, ad 6 mm longus,

3.5 mm diametro, calicis limbo infundibuliformi et styli basi exserta coronatus.

The nearest allies of *M. Mcgregorii* are *M. geminatus* and *M. Worcesteri*, and the differences from these are so small that I doubt if it can be kept as a separate species. *Macrosolen Mcgregorii* differs from the other two by the 3- or 4-flowered inflorescences, the somewhat smaller flowers, and the longer style rudiment upon the fruit. In leaf shape it chiefly agrees with *M. Worcesteri*, but from this species both *M. Mcgregorii* and *M. geminatus* differ by the subsessile leaves nearly equal on both sides, and the much less-flattened, never double-edged, young internodes.

Merrill describes the flowers of *M. Mcgregorii* as 5-merous; though this may be the case now and then, all the flowers examined by me were 6-merous. The inflorescences Merrill describes as 3- to 6-flowered; all inflorescences seen by me were only 3- or 4-flowered.

BOHOL, Guindulman, *Bur. Sci. 1266 McGregor* (M, type, NY, Be, cotypes), flower yellow.

8. MACROSOLEN GEMINATUS (Merrill) Danser.

Loranthus geminatus MERR., Philip. Journ. Sci. § C 4 (1909) 146; Enum. Philip. Fl. Pl. 2 (1923) 104.

Macrosolen geminatus DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 344; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 93.

Glabra, ramosissima. Internodia juniora teretia, apicem versus applanata et dilatata, novissima magis applanata et ancipita, vetustiora denique omnis teretia incrassata, quae folia adulta ferunt medio 2 ad 5 mm crassa. Folia opposita vel subopposita; petiolus difficile a lamina distinguendus, supra basin paulum incrassatam triangulus, laminam versus supra magis plana subtus carinata, parte anguste alata inclusa 3 ad 13 mm longus; lamina ovata vel ovato-oblonga, 4 ad 10 cm longa 1.5 ad 6 cm lata, basi cuneata et margine angusto in petiolum decurrens, apicem obtusum versus plerumque magis minusve acuminata, tenuiter vel crassiuscule coriacea, utraque facie opaca, penninervis costa supra leviter convexa subtus valde prominente carinata, nervis lateralibus et venis utraque facie partim distinctis. Inflorescentiae singulae vel paucae in axillis foliorum, pedunculi apice flores 2 sessiles ferentes; pedunculus 3 ad 5 mm longus, c. 0.75 mm crassus, basi paulum incrassatus; bracteae bracteolae-

que suborbiculares, bractea c. 2 mm longa, bracteolae in unam cuneatam apicibus 2 rotundatis connatae, paulo breviores quam bractea. Calicis tubus teres, c. 4 mm longus, 1.5 mm latus; limbus infundibuliformis, c. 1 mm longus, leviter lobatus. Corolla crassiuscula, statu alabastri adulti 13 ad 16 mm longa, e basi rotundata in dimidia parte inferiore ellipsoides 4 mm lata 6-angula, deinde in collum 6-angulum c. 2 mm latum attenuata et in clavam obtusissimam c. 3 mm latam incrassata, postea dehiscens in lacinias 6, tubo c. 5 mm longo, laciniis recurvatis e basi c. 1.5 mm lata primum in dimidiam latitudinem attenuatis deinde lanceolatis apice crassiusculo subacuto. Anthera subsessilis, c. 3 mm longa, apicem subacutum versus sensim paulum attenuata, loculis 4 continuis. Stylus corolla paulo brevior, dimidia parta superiore stigma versus paulum incrassatus, c. 1 ad 1.25 mm supra basin articulatus; stigma ellipsoides, stylo paulo crassius. Cetera ignota.

SAMAR, Borongan, sea level, *Merrill 11593* (M, B, L, S). MINDANAO, Surigao Province, Catel, low altitude, *Merrill 5444* (M, type, NY, Be, cotypes of *Loranthus geminatus* Merr.).

9. MACROSOLEN WORCESTERI (Merrill) Danser.

Loranthus worcesteri MERR., Philip. Journ. Sci. § C 9 (1914) 284; Enum. Philip. Fl. Pl. 2 (1923) 111.

Macrosolen Worcesteri DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 346; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 95.

Glabra, ramosissima. Internodia juniora teretia, apicem versus incrassata et paulum applanata, vetustiora teretia nodis magis incrassata, quae folia ferunt 1.5 ad 4 mm crassa. Folia opposita, sessilia, rotundato-ovata ad lanceolata, 4 ad 12 cm longa, 1.5 ad 8 cm lata, basi cuneata ad leviter cordata, maxima latitudine in vel sub medio, apice obtusa vel rotundata, crassiuscule coriacea, faciebus similibus, leviter lucidis, penninervis, costa convexa, nervis lateralibus et venis leviter prominentibus distinctis. Inflorescentiae singulae vel paucae in axillis foliorum, pedunculi simplices apice flores 2 ferentes; pedunculus 3 ad 5 mm longus, c. 0.6 mm crassus, basi paulum incrassatus; bracteae bracteolaeque suborbiculares, bractea c. 2 mm longa, bracteolae in unam late reniformem biapiculatam connatae, bracteolae paulo breviores. Calicis tubus cylindricus, c. 3 mm longus 1.25 mm latus; limbus infundibuliformis, 0.75 ad 1 mm longus, integer. Corolla crassiuscula, statu alabastri adulti c. 13 mm longa,

e basi rotundata dimidia parte inferiore ellipsoides ad 4 mm lata, deinde in collum 6-angulare attenuata et in clavam obtusissimam 6-angulam 3 mm crassam inflata, postea dehiscens in lacinias 6, tubum c. 3 mm longum relinquens, laciniis e basi c. 1.5 mm lata primum ad dimidian latitudinem attenuatis deinde in partem lanceolatam c. 1 mm latam recurvatam dilatatis, apice crassiusculis acutis. Anthera subsessilis, c. 3 mm longa, obtusa, loculis 4 continuis. Stylus c. 0.5 mm supra basin articulatus; stigma globosum, stylo paulo crassius. Cetera ignota.

Macrosolen Worcesteri is closely related to *M. geminatus*, and is, like this, perhaps not to be kept separated from *M. Mcgregorii* as a species. The difference with *M. geminatus* is chiefly in the different leaves nearly similar on both sides and sessile, but the flowers are smaller moreover and the young twigs are not double-edged. All these differences are, however, of little importance for specific distinction among Loranthaceæ.

MINDANAO, Bukidnon Province, near Sumilao, *Bur. Sci. 15673 Fénix* (M, type, Be, cotype), flower pink and yellow.

10. MACROSOLEN ANGULATUS (Elmer) Danser.

Loranthus angulatus ELMER, Leafl. Philip. Bot. 3 (1911) 1074; MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.

Macrosolen angulatus DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 343; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 91.

Glabra, ramosissima. Internodia juniora acute quadriangula valde compressa, lateribus concavis angulis fere anguste alatis basi 2.5 ad 4 mm crassa, apicem versus fere duplo latiora ad apices ramulorum longitudine decrescentia 1 ad 2 cm longa, in ramulis vetustioribus ad 7 cm longa minus acute quadriangula vel etiam teretia. Folia opposita; petiolus basi triangulus supra planus subtus carinatus, laminam versus supra latior, 4 ad 7 mm longus; lamina elliptica, basi cuneata et nonnihil in petiolum decurrens, apice obtusa vel rotundata, 4 ad 10 cm longa 2 ad 6.5 cm lata, tenuiter coriacea, utraque facie opaca, penninervis, costa facie superiore valde prominente carinata, superiore convexa, nervis ceteris et venis utrinque distinctis. Inflorescentiae singulae vel paucae in axillis foliorum, pedunculi apice 4 flores sessiles ferentes; pedunculus plerumque 8 ad 9 mm longus 1 ad 1.25 mm crassus basi paulum incrassatus; bracteae bracteolaeque suborbiculares, bractea c. 2 mm longa, bracteolae in unam late reniformem biapiculatam connatae, bracteis paulo breviores. Calicis tubus cylindricus, c. 4 mm longus 1.25 ad 1.5

mm latus; limbus 1 ad 1.25 mm longus infundibuliformis integer vel levissime lobatus. Corolla crassiuscula, statu alabastri adulti c. 12 ad 13 mm longa, e basi rotundata in dimidiam partem inferiorem ellipsoidem inflata, supra carinis 6 acutis, deinde abrupte paulum contracta et in clavam ellipsoidem 6-angulam obtussissimam incrassata, postea in lacinias 6 dehiscens, tubum c. 3.5 mm longum relinquens, laciniis e basi c. 1.25 mm lata primum attenuatis deinde in partem oblongam crassiusculam acutam c. 4 mm longam transientibus, recurvatis sed apice incurvatis. Anthera subsessilis, c. 3 mm longa, obtusissima, loculis 4 continuis. Stylus c. 1 mm supra basim articulatus. Cetera ignota.

Macrosolen angulatus is closely related to *M. Mcgregorii, M. geminatus,* and *M. Worcesteri,* but differs more from these three species than these three species among each other. The most striking character is the short, sharply quadrangular, even narrowly winged young internodes. In leaf shape and coarseness of the inflorescences it resembles most *M. geminatus,* but the corolla is much smaller and especially thicker, and the inflorescences are 3- or 4-flowered, as in *M. Mcgregorii.*

MINDANAO, Davao Province, Mount Apo, Todaya, steep ravine along Baruring River, 825 m elevation, *Elmer 10804* (M, NY, B, L, U, Be, cotypes).

11. MACROSOLEN SUBSESSILIS (Merrill) Danser.

Loranthus subsessilis MERR., Philip. Journ. Sci. § C 7 (1912) 263; Enum. Philip. Fl. Pl. 2 (1923) 110.

Macrosolen subsessilis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 345; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 94.

Glabra. Ramuli longi gracillimi, internodiis junioribus teretibus nodis paulum applanatis et incrassatis, vetustiora nodis magis incrassatis, folia adulta ferentibus 5 ad 10 cm longis 1 ad 3 mm crassis. Folia opposita; pedunculus e basi tereti paulum incrassata laminam versus supra applanatus, 4 ad 7 mm longus; lamina ovato-oblonga, 8 ad 14 cm longa, 4 ad 6 cm lata, basi rotundata vel cuneata, apicem obtusiusculum versus distincte acuminata, tenuiter coriacea, utraque facie opaca, inferiore dilutius colorata quam superiore, costa subtus valde supra minus prominente, nervis crassioribus facie inferiore visibilibus, nervis lateralibus omnibus utrinque visibilibus. Inflorescentiae singulae supra cicatrices foliorum iam delapsorum, pedunculi breves

apice flores 2 sessiles ferentes; pedunculus c. 1.5 mm longus, 2 mm latus; bracteae bracteolaeque cupulam calicis basin circumdantem formantes; bracteae suborbicularis, c. 3 mm longa 4 mm lata; bracteolae in unam late reniformem bracteae aequilongam connatae. Calicis c. 5.5 ad 6 mm longus, 3 mm latus, limbo vix a tubo distinguendo paulum infundibuliformi, c. 1.5 mm longo. Corolla statu alabastri adulti c. 65 mm longa, a basi c. 1.5 mm lata sensim dilatata usque ad duas quintas longitudinis, ibi c. 5 mm lata, quinta parte media subcylindrica apice carinis 6 prominentibus, deinde sensim in collum paulo tantum tenuius attenuata et in clavam 5 mm crassam acute 6-angulam apice paulum acuminatam incrassata, postea deshiscens usque ad carinas in lacinias 6 e basi c. 3 mm lata sensim attenuatas, 15 mm ab apice c. 1.25 mm latas recurvatas, parte apicali anguste lanceolata acuminata c. 2 mm lata crassiuscula, extus concava, intus sulca in qua anthera quadrat. Filamenti pars libera c. 6 mm longa; anthera c. 7 mm longa, 0.4 mm lata, obtusa, loculis 4 continuis. Stylus filiformis, dimidia parte superiore paulo crassior quam inferiore, paulum supra basin articulatus, sub stigmate paulum attenuatus, corollae c. 3 mm longior; stigma globosum, c. 0.75 mm crassum. Cetera ignota.

Macrosolen subsessilis is closely related only to *M. dianthus* of the Malay Peninsula, and differs from this species only in rather little-important characters, such as larger bracts and calyces, shorter but wider corollas, and broader and more acute corolla lobes, that produce some resemblance to *M. Acunae* and *M. Beccarii.*

MINDANAO, Zamboanga Province, Sax River, 900 m elevation, *Merrill 8315* (M, type, Be, L, cotypes), flower red; Sax River, near San Ramon, *Williams 2425* (M, NY), flower red.

VI. Genus LEPIDARIA Van Tieghem

Lepidaria VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1885) 349, 449; Compt. Rend. Acad. Sci. Paris 153 (1911) 1196, 1198; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 291, 321; 11 (1931) 308; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 63; Rec. Trav. Bot. Néerl. 30 (1933) 471, 1*c*, 2*c*.

Lepidella, Chorilepis, Chorilepidella VAN TIEGH., Compt. Rend. Acad. Sci. Paris 153 (1911) 1196, 1198.

Inflorescentia capitata, involucro composito e bracteis decussatis, exterioribus sterilibus, interioribus flores singulos sessiles ferentibus. Corolla 6-meres sympetala. Antherae basifixae vel appendice basali levissime dorsifixa, acutae, loculis 4 continuis.

The genus *Lepidaria*, in the Philippines, is restricted to Luzon and is represented there by two species. In Sumatra, Borneo, and the Malay Peninsula there have been found eight species more.

Key to the Philippine species of Lepidaria.

1. Involucral bracts thin-coriaceus, rounded at the apex, the innermost ones not connate ..... 1. *L. Williamsii.*
   Involucral bracts membranaceous, the longer ones acuminate at the apex, the innermost ones connate to a calyptra..... 2. *L. tetrantha.*
   Compare also the insufficiently known *L. quadriflora* and *L. biflora* Van Tiegh., at the end of the genus.

1. LEPIDARIA WILLIAMSII (Merrill) Danser.

Loranthus williamsii MERR., Philip. Journ. Sci. § C 4 (1909) 148.
Lepeostegeres williamsii MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.
Lepidaria Williamsii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 322; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 64.

Glabra, stolonibus numerosis plantae nutrici affixa. Ramuli breves et graciles, ad 40 cm longi, basi ad 7 mm crassi, e basi ramosi, teretes, nodis incrassatis, internodiis folia adulta ferentibus teretibus apicem versus applanatis et dilatatis, 2 ad 3 cm longis parte inferiore 1 ad 2 mm crassis apicem versus ad 2.5 ad 3 mm latis, novissimis parte apicali ancipitibus. Folia opposita; petiolus supra planus subtus rotundatus vel subcostatus, difficillime a lamina distinguendus, 0 ad 5 mm longus; lamina plerumque ovato-lanceolata, nonnunquam lanceolata vel obovato-lanceolata, in foliis majoribus pro longitudine latior; obovato-oblonga, 3 ad 7.5 cm longa, 1 ad 2.75 cm lata, e basi rotundata in petiolum contracta vel in foliis minoribus etiam magis attenuata, apice obtusissima vel rotundata, tenuiter coriacea, utraque facie opaca, penninervis, costa facie inferiore magis prominente quam superiore, nervis lateralibus venisque utrinque distinctis vel indistinctis. Inflorescentiae sessiles, singulae in axillis foliorum vel paucae in nodis defoliatis; receptaculum tempre florendi subcylindricum c. 2.5 mm longum 2 mm latum, postea apice ad 3 mm dilatatum, paribus bractearum 6 ad 7 plerumque confertis rarius internodio singulo 1 mm longo inter paria 2 exteriora et 4 ad 5 interiora; bracteae invulucrum primum globosum, postea oblongius et laxius formans, parium 2 exteriorum breves et crassiusculae vix foliaceae, interiorum abrupte distinctae, ex orbiculari vel paulum transverse elliptico

gradatim longiores et oblongiores, ad 13 ad 16 mm longae, omnes apice rotundatae, exteriores dorso convexiores iam ante tempus florendi deciduae, interiores planiores, post anthesin deciduae. Flores plerumque 4 (3 ad 5), sessiles in cupula subplana margine brevi erecto lacerato vel raro in apices 2 laterales prolongato, 1 ad 1.5 mm diametro. Calicis pressione angulosus, breve campanulatus, c. 1.75 mm longus, basi 1.5 mm apice 2 mm latus, limbo c. 0.25 mm longo irregulariter dentato. Corolla plerumque 6-meres raro 5-meres, regularis sympetala, statu alabastri adulti 22 ad 25 mm longa, basi rotundata, 3 mm supra basin ad 4 mm lata, deinde usque ad 7 mm ab apice sensim ad 1.75 mm attenuata, deinde abrupte paulum incrassata et versus apicem obtusissimum paululum tantum attenuata, postea dehiscens in lacinias 6 raro 5, tubum 4 mm longum late companulatum relinquens; laciniae e basi 1 ad 1.25 mm lata sensim attenuatae usque ad flexuram c. 7 mm ab apice ubi c. 0.6 mm latae, supra flexuram anguste lanceolatae, c. 0.75 mm latae apice obtusiusculae. Filamenti pars libera 0.5 ad 1 mm longa, anthera apicem acutissimum versus sensim attenuata, 4.5 mm longa, loculis 4 continuis. Stylus tota longitudine aequicrassus, parte inferiore levis, superiore sulcis tenuissimis 12, basi articulatus. Fructus ellipsoides, maturus probabiliter 10 mm longus subaequicrassus, calicis limbo brevi coronatus; endospermium rotundato-ellipsoides, c. 6 mm longum, 4 mm crassum.

Lepidaria Williamsii is very different from the second Philippine *Lepidaria;* from the species of the western part of the Malay Archipelago it differs by the absence of normal bracteoles at the base of the flowers, the flowers being placed on flat cups, the margin of which is probably formed by the connate bracts.

Philippines, no exact locality, *Cuming 1974* (M). LUZON, Benguet Subprovince, Baguio, *Williams 973* (M, type of *Loranthus Williamsii* Merr., NY, cotype); Naguilian Road, 1,300 m altitude, *Merrill 1784* (M, NY, B, L, S, Be), height of plant c. 2 m, flowers deep purple-red.

2. LEPIDARIA TETRANTHA (Merrill) Danser.

Loranthus tetranthus MERR., Philip. Journ. Sci. § C 7 (1912) 79.

Lepeostegeres tetranthus MERR., Enum. Philip. Fl. Pl. 2 (1923) 101; Enum. Philip. Fl. Pl. 2 (1923) 101.

Lepidaria tetrantha DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 322; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 64.

Glabra, subgracilis. Internodia novissima apicem versus paulum applanata et dilatata, vetustiora teretia nodis nonnihil incrassata, quae folia adulta ferunt 12 ad 40 mm longa, c. 2 mm crassa. Folia opposita; petiolus supra planus subtus rotundatus, difficile a lamina ditinguendus, 3 ad 5 longus, c. 1 mm latus; lamina plerumque ovato-lanceolata, nonnunquam ovato-oblonga vel magis lanceolata, 4 ad 7 cm longa, 13 ad 22 mm lata, basi sensim in petiolum attenuata, apice obtusa vel obtusissima, utraque facie opaca, crassiuscule coriacea, penninervis, costa tantum visibili supra distincta plana subtus prominente. Inflorescentiae singulae in axillis foliorum vel paucae in nodis defoliatis, omnino sessiles; receptaculum brevisimum, vix a superficie ramuli elevatum; bracteae valde confertae, submembranaceae praecipue versus basin, in paribus c. 10 dispositae, exteriores brevissimae, interiores gradatim oblongiores et longiores, magis acuminatae, paria tria interiora cuspide semicylindrica lamina subaequilonga et paulum recurva, longissimae cuspide inclusa 10 ad 13 mm longae, 3.5 ad 4 mm latae, cuspide exclusa oblongo-ovatae, leviter convexae, 2 intimae connatae in calyptram oviformem, supra basin subirregulariter descissam, praecipue prope basin membranaceam, rostro cylindrico obtuso 2 ad 3 mm longo. Flores 4, in paribus 2 decussatis dispositi, sine ullis bracteolis, omnino sessiles. Calicis campanulatus, c. 3 mm longus, 2 mm latus, limbo erecto c. 0.5 mm longo irregulariter dentato. Corolla regularis sympetala 6-meres, statu alabastri adulti c. 22 mm longa, basi rotundata 3 mm supra basin 3 mm lata, deinde sensim attenuata, dimidia longitudine c. 1.5 mm lata, parte superiore subprismatica 6-angula, in paucis mm superioribus apicem obtusiusculum versus paulum coniformis, postea dehiscens in lacinias 6; tubus late companulatus 3 ad 4 mm longus, laciniae e basi 1.5 mm lata usque ad dimidiam longitudinem in dimidiam latitudinem attenuatae, deinde usque ad apicem fere aequilatae, in 3 mm superioribus paulum tantum attenuatae, apice obtusiusculae, parte superiore, ut videtur, non refractae. Filamenti pars libera c. 1.5 mm longa; anthera apicem acutum versus sensim attenuata, c. 3 mm longa, loculis 4 continuis. Stylus filiformis, in 5 mm superioribus paulo crassior et sub stigmate paulum attenuatus; stigma ellipsoides obtusissimum, styli parte crassiore aequicrassum. Cetera ignota.

Lepidaria tetrantha is still more different from the species of *Lepidaria* of the western part of the Malay Archipelago than

L. Williamsii, by its membranaceous involucral bracts of which the innermost pair is connate to a calyptra thrown off before the total development of the flowers. Merrill describes the flowers as 4-merous; I found them only normally 6-merous.

LUZON, Mountain Province, Bontoc, Malawey, 1,670 m altitude, *Vanoverbergh 1294* (M, type), height of plant 0.5 m, petals rose and greenish.

The specimen in the Philippine National Herbarium is the only one seen by me. All specimens distributed under the same number and name belong, as far as I saw them, to *Lepeostegeres congestiflorus*.

The following names are of doubtful status:

Lepidaria quadriflora and *Lepidaria biflora* VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 441; MERR., Enum. Philip. Fl. Pl. 2 (1923) 111; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 321, 322; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 63–64.

Chorilepis quadriflora and *Chorilepidalla biflora* VAN TIEGH., Compt. Rend. Ac. Sc. Paris 153 (1911) 1196, 1198.

Van Tieghem describes these two species as follows:

Ce meme genre [*Lepidaria*] comprend encore deux espèces récoîtées à Manille par Cuming. Dans la première (No. 1171), qui a les feuilles sessiles, l'axe de l'épi porte d'abord à la base deux paires de petites écailles, puis se prolonge en un entrenoeud gros et court qui porte autour de son sommet quatre paires de larges écailles, dont les deux derniéres seules sont fertiles; ici encore, l'ensemble des écailles supérieures forme un involucre author d'un capitule quadriflore: ce sera le *L. quadriflora*. Dans la seconde (No. 1174) qui a les feuilles pétiolées et dont l'épi porte aussi deux sortes d'écailles séparées par un gros entre-noeud, les deux dernières écailles de la partie superieure sont seules fertiles et le capitule involucré est par conséquent biflore: ce sera le *L. biflora*.

I did not see *Cuming 1171* and *1174* but on the sheet of *Cuming 1974* in the Philippine National Herbarium, Manila, Merrill has written, "This is a cotype of *Lepidaria biflora* Van Tiegh., in Bull. Soc. Bot. France 42 (1895) 441." I think it quite possible that Merrill is right with this remark, and that the Cuming numbers given by Van Tieghem are erroneous. In Vidal y Soler, Phan. Cuming. Philip., after the number *Cuming 1171*, we find the names *Mallotus* and *Connarus*, and after the number *1174*, *Bischofia*, but after both the numbers *1971* and *1974* we read: "*Loranthus* (*Lepiostegeres*) sp." So it is probable that *Lepidaria biflora* is really a synonym of *Lepidaria Williamsii;*

yet I cannot accept this name instead of the name used now, as the former is wellnigh a nomen nudum. However, I have not seen *Cuming 1971*, but in case *Lepidaria quadriflora* proves to be an older synonym of either *L. Williamsii* or *L. tetrantha*, I would certainly accept Van Tieghem's name instead of Merrill's, as it cannot be regarded as a nomen nudum and does express a correct character of either species.

VII. Genus AMYEMA Van Tieghem

Pilostigma VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 483, 488, 510, 540, 550; 42 (1895) 84, 87.

Amyema VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 499, 506, 510, 547, 550; 42 (1895) 84, 87; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 291, 293, 362–366; 11 (1931) 236, 238, 318; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 25.

Neophylum and *Stemmatophyllum* VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 499, 505, 508, 510, 545, 548, 550.

Benthamina and *Candollina* VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 85, 87, 244, 246, 269, 271.

Rhizanthemum VAN TIEGH., in Morot, Journ. de Bot. 15 (1901) 364.

Cleistoloranthus MERR., Philip. Journ. Sci. § 4 (1909) 130, 150; KRAUSE, in Engl. and Pr., Nat. Pfl. fam. Nachtr. 4 zu 2–4 (1915) 73.

Xylochlamys DOMIN, Bibl. Bot. 22 (1921) 610.

Inflorescentia umbella triadum, saepe vario modo diminuta, statu completo umbella pedunculata multiradiata triadum, floribus pedicellatis vel sessilibus, statu diminuto aut triadibus ad dyades vel flores singulos diminutis, aut triadibus vel dyadibus sessilibus, aut radiis paucis, aut umbella sessilis, casu extremo ad florem singulum reducta. Flores 4 ad 6 meres, choripetali vel rarious sympetali. Antherae basifixae, loculis continuis vel raro locellatis.

The genus *Amyema* is spread all over the Philippines; outside the Philippines it is only spread in a southern direction, and much more to the southeast, where it reaches Australia and New Caledonia, than to the southwest. It is represented in Borneo and Java each by three species, in the Malay Peninsula by only one species, whereas it is entirely wanting in Sumatra. Moreover, two species occur in tropical Africa.

I have reduced the number of Philippine species to seventeen, and to these have added two species new to science. However, several of the nineteen species distinguished by me are of doubtful status. The differences between *A. luzonensis* and *A. benguetensis* are constant, but not great, and as the latter species has

only been found as a parasite on *Pinus*, it seems possible that *A. benguetensis* may only be a race of *A. luzonensis* parasitic on conifers, in the same way as *Viscum laxum* has proved to be such a race of *Viscum album*. *Amyema mosea* differs from *A. acuta* in the same way, but in this case nothing is known about the host of *A. mosea*. The specific distinction of *A. basilanensis* and *A. celebica* is very doubtful. Also *A. fasciculata* and *A. aquilonia* are very closely related. Though the differences are rather large, further material is necessary to make out with certainty whether or not these two are distinct species. *Amyema polillensis* is closely related to *A. umbellata* from the Moluccas (Island of Borneo), and it is perhaps only a form of this species. *Amyema nodosa, A. Hutchinsonii, A. Wenzelii,* and the Bornean *A. Beccarii* constitute a group of closely related species, and though typical forms are very different, the species are not always easily distinguished, and it may be possible that they are only geographic variations of one polymorphous species. These examples are sufficient to show that our knowledge of the Philippine species is far from complete.

Key to the Philippine species of Amyema.

1. Flowers in umbels of triads ..... 2.
   Flowers in simple, peduncled umbels ..... 14.
   Flowers seemingly solitary, in reality in sessile few-flowered umbels. 16.
2. Umbels 8- to many-rayed; corolla sympetalous ..... 3.
   Umbels 4- or (rarely) more-rayed; corolla choripetalous ..... 7.
3. All flowers of the triads sessile ..... 5. *A. incarnatiflora.*
   Lateral flowers of the triads pedicelled, middle flowers pedicelled or sessile ..... 4.
4. Umbels with 15 to 50 rays ..... 5.
   Umbels with nearly 8 rays ..... 6.
5. Peduncle 25 to 50 mm long; flowers 5- or 6-merous. 1. *A. Haenkeana.*
   Peduncle nearly 10 mm long; flowers 4-merous ..... 2. *A. Curranii.*
6. Peduncle long; leaves scattered or opposite; middle flowers of the triads sessile ..... 3. *A. urdanetensis.*
   Peduncle 4 to 7 mm long; leaves verticillate; middle flowers of the triads pedicellate ..... 4. *A. halconensis.*
7. Leaves petioled ..... 8.
   Leaves sessile ..... 13.
8. Leaves exactly in whorls of four ..... 9.
   Leaves scattered or here and there crowded to whorls of four or less. 12.
9. Petals with a dorsal appendage near the tip, the appendages forming together a small crown around the tip of the corolla bud; corolla

17 to 25 mm long; flowers and inflorescences glabrous; middle flowers of the triads sessile or nearly sessile..... 11. *A. verticillata.*

No such appendages at the petals; middle flowers of the triads nearly always distinctly pedicelled, rarely nearly sessile..... 10.

10. Inflorescence and flowers entirely glabrous; corolla about 20 mm long. 10. *A. mosea.*

Inflorescence and flowers, especially the calyx, very densely and shortly puberulous ..... 11.

11. Corolla 17 to 25 mm long..... 8. *A. acuta.*

Corolla about 28 mm long..... 9. *A. medinillicola.*

12. Calyx tube nearly 3 mm long, 1.5 mm wide, calyx limb about 1.25 mm long; corolla 27 to 32, style 28 to 35 mm long..... 12. *A. celebica.*

Calyx tube 1.5 to 2 mm long, 1 mm wide, calyx limb about 0.6 mm long; corolla nearly 17 mm, style nearly 18 mm long. 13. *A. basilanensis.*

13. Inflorescence and flower hairy; corolla and style 25 to 38 mm long. 6. *A. luzonensis.*

Inflorescence and flower glabrous; corolla and style 13 to 20 mm long. 7. *A. benguetensis.*

14. Inflorescence and flower hairy, especially the calyx; corolla 18 to 22 (rarely) 28 mm long; flowers also along the internodes. 15. *A. fasciculata.*

Inflorescence and flower glabrous..... 15.

15. Corolla 14 to 15 mm long; umbel 4-flowered; flowers also along the internodes ..... 16. *A. aquilonia.*

Corolla 21 to 23 mm long; umbel 4- or more-flowered; inflorescences only at the nodes..... 14. *A. polillensis.*

16. Flowers on the runners and on the older nodes; leaves large and coarse, 11 to 27 cm long, 5 to 15 cm broad, broadest at or below the middle; corolla 12 to 14 mm, style 14 to 16 mm long..... 19. *A. Wenzelii.*

Flowers on the younger and older nodes of the leaf-bearing twigs; leaves medium-sized or smaller, broadest usually above the middle ..... 17.

17. Corolla and style 18 to 22 mm long; leaves mostly opposite, rarely scattered or whorled ..... 18. *A. Hutchinsonii.*

Corolla and style 8 to 14 mm long; leaves in whorls of four. 17. *A. nodosa.*

1. AMYEMA HAENKEANA (Schulten) Danser.

Loranthus Haenkeanus SCHULT., Syst. 7 1 (1829) 113; DC., Prodr. 4 (1830) 304; BLUME, in Schult., Syst. 7 2 (1830) 1612, 1730; Fl. Javae Lor. (1830) 14; DIETR., Syn. 2 (1840) 1077; FER.-VILL., Nov. App. (1880) 184; VIDAL, Pl. Cuming. Philip. (1885) 140; Rev. Pl. Vasc. Filip. (1886) 231; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 129; MERR., Philip. Journ. Sci. § C 4 (1909) 144 excl. specim.; Fl. Manila (1912) 184; Enum. Philip. Fl. Pl. 2 (1923) 104.

Loranthus malifolius SCHULT., Syst. 7 1 (1829) 113; DC., Prodr. 4 (1830) 304; BLUME, in Schult., Syst. 7 2 (1830) 1612, 1730; Fl. Javae Lor. (1830) 14; DIETR., Syn. 2 (1840) 1077; FER.-

VILL., Nov. App. (1880) 184; VIDAL, Pl. Cuming. Philip. (1885) 76, 140; Rev. Pl. Vasc. Filip. (1886) 232; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 129.

Dendrophthoe Haenkeana MART., Flora 1 (1830) 110; in Schult., Syst. 7 2 (1830) 1614; MIQ., Fl. Ind. Bat. 1 1 (1856) 822.

Scurrula Haenkeana and *malifolia* G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 423.

Dendrophthoe malifolia MIQ., Fl. Ind. Bat. 1 1 (1856) 822.

Candollina Haenkeana, malifolia, Barthei VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 269.

Loranthus Barthei ENGL. and PR., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 129.

Loranthus halconensis MERR., Philip. Journ. Sci. § C 4 (1909) 143 p. p.; MERR., and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; MERR., Enum. Philip. Fl. Pl. 2 (1923) 105 p. p. non Merr. Philip. Journ. Sci. § C 2 (1907) 271.

Loranthus eucalyptiphyllus MERR., Philip. Journ. Sci. § C 9 (1915) 444; Enum. Philip. Fl. Pl. 2 (1923) 104.

Amyema eucalytophylla and *Haenkeana* DANS,, Bull. Jard. Bot. Buitenzorg III 10 (1929) 295; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 27, 29.

Robusta vel subrobusta, stolonibus numerosis plantae nutrici affixa; glabra inflorescentia floribusque densissime brevissimeque pilosis exceptis. Ramuli teretes vel paulum obtus anguli nodis magis minusve incrassatis, internodiis folia adulta ferentibus plerumque 1 ad 8 cm longis, 2 ad 7 mm crassis, vestustiores crassiores nodis minus incrassatis, saepe torulosi. Folia sparsa vel rarius magis minusve in paria vel in verticillos congesta, in incrassationibus ramulorum inserta; petiolus teres, supra laminam versus paulum applanatus basi vix incrassatus, 10 ad 25 mm longus, 1 ad 3 mm crassus; lamina plerumque ovata ad lanceolata, rarious anguste lanceolata, 5 ad 22 raro ad 30 cm longa 1 ad 7 raro 12 cm lata, basi cuneata vel rotundata raro subcordata, saepe in petiolum contracta, maxima latitudine sub medio saepe propius basin, apicem subobtusum vel obtusum vel rotundatum versus sensim attenuata vel subacuminata, crassa, fragilis, utrinque opaca, rarius facie superiore sublucida, penninervis, costa supra subplana subtus valde prominente, nervis lateralibus venisque crassioribus indistinctis vel invisibilibus. Inflorescentiae raro in axillis foliorum singulae, etiam in nodo terminali, plerumque singulae vel gregatim in nodis ramulorum vetustiorum, nonnunquam etiam in stolonibus, umbellae pedunculatae triadum floribus mediis plerumque sessilibus lateralibus pedicellatis; pedunculus teres, 25 ad 50 mm longus, 1.25 ad 2.5

mm crassus, basi paulum incrassatus, apice in clavam ellipsoidem 3.5 ad 6 mm longam, 2.5 ad 3 mm crassam cicatricibus radiorum vestitam incrassatus; radii in verticillis alternatibus, numero c. 36 ad 64 (6 ad 8 x 6 ad 8), teretes, 3 ad 10 mm longi, 0.5 ad 1.25 mm crassi, apice basique incrassati; pedicelli florum lateralium 1 ad 2 mm longi rarius breviores, c. 0.3 mm crassi, pedicellus floris medii nullus vel raro ad 1 mm longo; bracteae bracteolaeque triangulares obtusae 1 ad 1.5 mm longae. Calicis campanulatus vel subinfundibuliformis, basi semper rotundatus, tubo 2.5 ad 4 mm longo apice 1.5 ad 2.5 mm lata, limbo integro erecto raro subinfundibuliformi, 0.75 ad 1 mm longo. Corolla sympetala, statu alabastri adulti 30 ad 38 mm longa, partibus 0.75 ad 0.8 inferioribus cylindrica 2 mm lata vel supra basin ad 3 mm dilatata, 4 mm superioribus in clavam ellipsoidem obtusam 3 mm crassam incrassata, postea dehiscens in lacinias 5 rarius 6, tubo 2 ad 30 mm longo, si longiore uno latere fisso stylo transitum dante, laciniis linearibus ad 6 ad 8 mm ab apice reflexis supra flexuram lanceolatis vel subspathulatis acutis vel acutiusculis. Filamenti pars libera 3 ad 5 mm longa, anthera 1 ad 4 mm longa, basi nonnihil contracta subarticulata, apice rotundata, loculis 4 continuis. Stylus corolla 1 ad 2 mm longior, tota fere longitudine aequicrassus, in 6 ad 8 mm superioribus sensim ad dimidiam crasitudinem attenuatus; stigma parvum obtusum. Frustus ellipsoides, ad 10 mm longus, 6 mm crassus, calicis limbo permanente erecto 1 ad 1.5 mm longo coronatus.

Amyema Haenkeana is somewhat polymorphic, but less than one would expect who is acquainted with the variability of loranthaceous species. The area of distribution is restricted to Luzon, Mindoro, and Sibuyan, but in that area the species appears to be common. It occurs there from sea level up to 450 m altitude.

The color of the flowers, indicated on the herbarium labels, is mostly red, in different hues, rarely yellow.

Philippine Islands, without exact locality, *Haenke s. n.* (UC), fragments of the types of *Loranthus Haenkeanus* and *malifolius* from the herbarium of the Botanic Garden, Deutsche Universität Prag; *Cuming s. n.* (L), *1957* (M), *1947* (M, L, NY, Be, the latter type of *Candollina Haenkeana* Van Tiegh.). LUZON, Ilocos Norte Province, Burgos, 15 to 19 m elevation, *Bur. Sci. 27285, 27287 Ramos* (M); Bangui, *Bur. Sci. 43586 McGregor* (M, UC, B); Piddig, *Bur. Sci. 43625 McGregor* (M, UC): Ilocos

Sur Province, Pidigan, 200 m elevation, *F. B. 5657 Klemme* (M); San Domingo, sea level, *Bernhardt* s. n. (UC); Barrio Lungog, *Clemens 17856* (UC): Abra Province, Peñarubia, *Wester 18862* (M): Mountain Province, Benguet, Dilopirip to Mount Palguingon, *F. B. 15892 Bacani* (M); Mount Pulog, *F. B. 61230 Curran, Merritt, and Zschokke* (M); Bontoc, Bauco, *Vanoverbergh 1505* (M), type of *Loranthus eucalyptiphyllus* Merr.; Lepanto, Sinidab (?), 450 m elevation, *Bona 403* (M): La Union Province, San Fernando, 50 m elevation, *Manangan 13* (M); *Loher 6731* (Be); Castilla, *Loher 6739* (M, Be); Bacnotang, 4 m elevation, *Lete 456* (M); Bauang, *Elmer 5537* (N, NY, Be): Pangasinan Province, Umingan, *F. B. 17698 Otanes* (M): Tarlac Province, *Hall s. n.* (M); San Miguel, *Bur. Sci. 22421 Celestino* (M, L): Nueva Ecija Province, Fiela, Papaya, Peñaranda, *Gates 5311* (M); Cabanatuan, *Bur. Sci. 5271 McGregor* (M): Pampanga Province, Camp Stotsenburg, *Clemens s. n.* (M); Mount Abu, 125 m elevation, Bucudpong-Florida, *Bur. Sci. 1929 Foxworthy* (M): Bataan Province, Lamao Forest Reserve, *Bur. Sci. 1618 Foxworthy* (M); 30 m elevation, *Bur. Sci. 1894 Foxworthy* (M); Lamao River, *F. B. 90 Barnes* (NY): Bulacan Province, Norzagaray, *Yoder 251* (M); Angat, 100 m elevation, *Bur. Sci. 21701 Ramos* (M): Rizal Province, *Ramos 1036* (M, U, Br); *Loher 15059* (K); Pantay, *Bur. Sci. 19199 Reillo* (M); Antipolo, *Bur. Sci. 29524* (M, Be): Manila, *Lyon s. n.* (M). MINDORO, without exact locality, *Bur. Sci. 10870 Celestino* (M); Puerto Galera (Baloteros Maliit), on beach, *Bur. Sci. 15178 Kienholz* (M, UC). SIBUYAN, Capiz Province, Mount Gitinggiting, Magallanes, *Elmer 12138* (NY, B, L).

2. AMYEMA CURRANII (Merrill) Danser.

Loranthus curranii MERR., Philip. Journ. Sci. § C 4 (1909) 144; MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; MERR., Enum. Philip. Fl. Pl. 2 (1923) 104.

Amyema Curranii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 294; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 27.

Glabra, inflorescentiis et floribus breviter velutinis exceptis, robusta. Ramuli teretes, internodiis folia adulta ferentibus nodis incrassatis, usque ad 6 cm longis, 3 ad 6 mm crassis. Folia sparsa vel fere ternata; petiolus supra basin paulum incrassatam teres, laminam versus supra sensim applanatus, 5 ad 18 mm

longus, 1.25 ad 2.5 mm crassus; lamina ovato-oblonga ad ovato-lanceolata, vel oblongo-lanceolata, 5 ad 18 cm longa, 1.5 ad 5 cm lata, basi rotundata et saepe paulum in petiolum contracta, maxima latitudine magis vel minus sub medio, versus apicem acutiusculum vel obtusum acuta vel subacuminata, crassiuscule coriacea, facie superiore semilucida inferiore opaca, penninervis, costa supra leviter subtus valde prominente, nervis lateralibus venisque supra distinctis ad invisibilibus, subtus indistinctis vel invisibilibus. Inflorescentiae in nodis defoliatis insertae, umbellae pedunculatae triadum floribus mediis sessilibus lateralibus pedicellatis; pedunculus teres, apice in clavam ellipsoidem vel globosam 2.5 ad 2.75 mm longam, 2 ad 2.25 mm crassam cicatricibus radiorum vestitam incrassatus, clava terminali excepta 4 ad 10 mm longus, 1 ad 1.5 mm crassus; radii in verticillis alternantibus dispositi, 18 ad 48 (3 ad 6 x 6 ad 2), 3 ad 4 mm longi; pedicelli florum lateralium c. 0.5 ad 1.5 mm longi; bracteae bracteolaeque 1 ad 2 mm longae. Calicis infundibuliformis, tubo c. 2.5 mm longo basi c. 0.5 mm apice c. 1.5 mm lato, limbo c. 1 mm longo, tubo paulo latiore, infundibuliformis, dentibus breviter triangularibus. Corolla 30 ad 35 mm longa, statu alabastri adulti e basi, c. 1.5 mm lata usque ad 5 mm ab apice subcylindrica, 5 mm superioribus in clavam 2 mm crassam obtusissimam incrassata, postea fissa in 4 lacinias parte reflexa 5 ad 7 mm longa, lanceolata vel spathulata, tubo longo unilateraliter fisso stylum transitum dante. Filamenti pars libera 2.5 ad 4 mm longa; anthera 2 ad 3 mm longa, obtusa, loculis 4 continuis. Stylus filiformis, corolla c. 3 mm longior, tota longitudine aequicrassus; stigma vix crassius, obtusum. Cetera ignota.

Amyema Curranii is closely related to *A. Haenkeana*, but shows some remarkable differences from that species; namely, 4-merous slenderer flowers and shorter-peduncled inflorescences. Moreover, data indicate that *A. Curranii* is only found at altitudes of from 1,200 m to 2,250 m. The corolla is indicated as red on the herbarium labels.

LUZON, Mountain Province, Benguet, Mount Santo Tomas 2,250 m elevation, *F. B. 5035 Curran* (M), on *Podocarpus*, type of *Loranthus curranii* Merr.: Ifugao Subprovince, Mount Polis, *Bur. Sci. 19771 McGregor* (M), *Sandkuhl 311* (M): Bontoc Subprovince, Malamey (Pinggat), 1,650 m, *Vanoverbergh 1193* (M, Be): Pangasinan Province, 1,200 m elevation, *F. B. 18032 Merritt* (M, B).

3. AMYEMA URDANETENSIS (Elmer) Danser.

Loranthus urdanetensis ELMER, Leafl. Philip. Bot. 6 (1913) 1963; MERR., Enum. Philip. Fl. Pl. 2 (1923) 110.

Loranthus leytensis MERR., Philip. Journ. Sci. § C 9 (1914) 278; Enum. Fl. Pl. 2 (1923) 106.

Amyema leytensis and *urdanetensis* DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 296, 299; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 30, 34.

Glabra, inflorescentiis bracteisque calicibusque tenuiter sed dense tomentosis exceptis. Ramuli juniores teretes, internodiis ad foliorum insertiones incrassatis et paulum applanatis, folia adulta ferentibus 1 ad 6 cm longis 1.25 ad 4 mm crassis. Folia sparsa vel subopposita; petiolus basi teres paulum incrassatus, laminam versus supra sensim applanatus vel etiam excavatus, 5 ad 12 mm longus, 0.75 ad 1.5 mm crassus; lamina ovato-oblonga ad lanceolata, 4 ad 8 cm longa, 1 ad 3 cm lata, basi acuta vel subrotundata, apicem obtusiusculum versus acuta vel subacuminata, crassiuscule vel crasse coriacea, costa facie inferiore valde prominente, superiore plana distincta, nervis lateralibus crassioribus supra indistinctis subtus invisibilibus. Inflorescentiae umbellae triadum pedunculatae, floribus mediis sessilibus lateralibus breviter pedicellatis, singula in axillis vel in nodis defoliatis; pedunculus 20 ad 30 mm longus, teres, c. 0.75 mm crassus, apice in capitulum c. 1.5 mm longum, 1.75 mm latum incrassatus; radii c. 8, 2 ad 5 mm longi, 0.3 ad 0.5 mm crassi; pedicelli florum lateralium c. 0.5 mm longi et crassi; bracteae ovatae, acutae, c. 1.5 mm longae, bracteae paulo magis convexae et obtusae, ceterum similes. Calicis campanulato-infundibuliformis, 2 ad 2.5 mm longus, apice 1.25 mm latus, limbo brevi 0.25 ad 0.5 mm longo indistincte dentato. Corolla 30 ad 35 mm longa, statu alabastri adulti e basi c. 1.5 mm lata in duabus tertiis partibus inferioribus sensim ad 3 mm dilatata, deinde paulum contracta et interum dilatata, postea dehiscens in lacinias 5 fissuris omnibus profundis vel singula tantum valde profunda, parte reflexa lanceolata, 5 ad 6 mm longa, 0.75 mm lata, acuta vel obtusa. Filamenti pars libera 2.5 ad 3 mm longa; anthera 1.5 ad 2 mm longa, obtusa, loculis 4 continuis. Stylus filiformis, corolla paulo longior, tota longitudine aequicrassus, sub stigmate tantum paulum attenuatus; stigma paulum incrassatum, stylo subaequicrassum. Cetera ignota.

Amyema urdanetensis and *A. leytensis* are too little different to be distinguished as separate species.

LEYTE, Mount Ibuni, back of Dagami, *Bur. Sci. 15243 Ramos* (M, B, L), type of *Loranthus leytensis* Merr., flower yellow. MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, 6,000 feet altitude, *Elmer 14092* (M, NY, B, L, Be), cotypes of *Loranthus urdanetensis* Elmer, corolla deep blood red, except the yellow apical segments.

4. AMYEMA HALCONENSIS (Merrill) Danser.

Loranthus halconensis MERR., Philip. Journ. Sci. § C 2 (1907) 271; 4 (1909) 143 excl. specim.; Enum. Philip. Fl. Pl. 2 (1923) 105 p. p.

Loranthus pubiflorus MERR., Philip. Journ. Sci. § C 7 (1912) 263 non Sprague (m. Mart, 1912).

Loranthus Spraguei MERR., Philip. Journ. Sci. § C 13 (1918) 279; Enum. Philip. Fl. Pl. 2 (1923) 110.

Amyema halconensis and *Spraguei* DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 296, 299; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 29, 34.

Glabra, inflorescentiis calicibusque breve densique velutinis et corolla parcius et magis papillose puberula exceptis. Robusta, stolonibus plantae nutrici affixa. Ramuli juniores teretes, nodis incrassatis, internodiis folia adulta ferentibus 7 ad 11 cm longis, 2 ad 7 mm crassis, vetustioribus crassioribus nodis minus incrassatis. Folia verticillata plerumque ad 5 vel 6; petiolus supra basin paulum incrassatam teres, laminam versus sensim applanatus vel excavatus, 5 ad 15 mm longus, 1 ad 2.5 mm crassus; lamina oblongo-lanceolata, 10 ad 18 cm longa, 1.5 ad 7.5 cm lata, basi cuneata vel subrotundata, apice acuta vel obtusa, crassa, fragilis, utrinque opaca, nervature facie superiore parte vel omnis distincta, facie inferiore costa valde prominente nervis ceteris vix visibilibus. Inflorescentiae in nodis defoliatis et in stolonibus, umbellae pedunculatae triadum, floribus omnibus pedicellatis; pedunculus 3 ad 7 mm longus, c. 0.75 mm crassus, apice basique incrassatus, teres; radii c. 8, 1 ad 2.5 mm longi; pedicelli florum mediorum 0.5 ad 0.75 mm longi, lateralium longiores ad 1.5 mm, omnes teretes; bracteae bracteolaeque ovatae, obtusae vel acutae, 0.5 ad 1.5 mm longae. Calicis campanulato-infundibuliformis, 1.5 ad 2 mm longus, apice 1 ad 1.5 mm latus, limbo 0.5 ad 0.75 mm longo indistincte dentato. Corolla statu alabastri adulti 22 ad 32 mm longa, a basi rotundata usque ad duas tertias longitudinis 1 ad 2 mm lata, tum nonnihil ampliata, deinde vix attenuata et iterum in clavam subacutam incrassata, postea dehiscens in lacinias 4.5, vel 6, tubum plerumque 1 ad 2

mm raro longiorem relinquens, laciniis linearibus, parte superiore reflexa 4 ad 6 mm longa lanceolata basi lata apice acuta. Stamina 4 ad 6; filamenti pars libera 0.5 ad 3 mm longa; anthera 2 ad 3 mm longa, obtusa, loculis 4 continuis. Stylus corolla 2 ad 3 mm longior, filiformis, sub stigmate tantum paulum attenuatus; stigma paulum incrassatum, obtusum. Cetera ignota.

Amyema halconensis and *A. Spraguei* are too little different to be distinguished as separate species. The flower of this species is said to be yellow.

LUZON, Laguna Province, Paete, low altitude, *F. B. 13086 Curran* (M), type of *Loranthus pubiflorus* Merr. MINDORO, Alag River, Mount Halcon, 100 m altitude, *Merrill 5664* (M, type, NY, Be, cotypes of *Loranthus halconensis*). PANAY, Iloilo Province, Ulian River, *Bur. Sci. 18294 C. B. Robinson* (M): Capiz Province, Libacao, Tagnacan, low altitude, *Bur. Sci. 35459 Martelino and Edaño* (M, Be).

5. AMYEMA INCARNATIFLORA (Elmer) Danser.

Loranthus incarnatus ELMER, Leafl. Philip. Bot. 3 (1911) non Jack (1824) nec Korth. (1839).

Loranthus incarnatiflorus and *L. preslii* ELMER, Leafl. Philip. Bot. 6 (1913) 1969–1970; MERR., Enum. Philip. Fl. Pl. 2 (1923) 105, 109.

Loranthus Fenicis and *L. maritimus* MERR., Philip. Journ. Sci. § C 9 (1914) 281, 282; Enum. Philip. Fl. Pl. 2 (1923) 104, 106.

Amyema incarnatiflora, Fenicis, maritima DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 295–297; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 28–31.

Glabra, inflorescentiis calicibusque brevissime velutinus et corolla parce pilosa exceptis. Ramuli teretes vel subangulati, insertionibus foliorum incrassatis, internodiis inter folia adulta ad 6 cm longis, 1.5 ad 5 mm crassis. Folia sparsa vel ad 2 vel 3 in verticillos conferta; petiolus supra basin saepe paulum incrassatam teres, laminam verus supra late concavus vel subplanus, 5 ad 25 mm longus, 1 ad 2.5 mm crassus; lamina lanceolata ad ovato-cordata, 5 ad 12 cm longa, 2 ad 6.5 cm lata, basi cuneata ad subcordata, apicem acutiusculum versus sensim attenuata vel subacuminata rarius obtusior, crassa, fragilis, utrinque opaca, costa supra plana distincta subtus valde prominente, nervis ceteris supra indistinctis vel invisibilibus, subtus subinvisibilibus. Inflorescentiae umbellae pedunculatae triadum omnibus floribus sessilibus, singulae in axilis vel in nodis defoliatis, vel in stolonibus; pedunculus 10 ad 26 mm longus, teres, 1

ad 1.25 mm crassus, basi paulum incrassatus, apice in capitulum radiis omnino tectum incrassatus; radii 15 ad 30, rarius pauciores, teretes 1 ad 6 mm longi; bracteae bracteolaeque ovato-triangulares, acutae vel obtusae, 0.5 ad 1.5 mm longae. Calicis campanulato-infundibuliformis vel paulum ovatus, 2.25 ad 3 mm longus, apice 1.75 mm latus, limbo brevissimo vel ad 0.75 mm longo, integro vel irregulariter brevissime dendato; corolla 25 ad 30 mm longa, statu alabastri adulti supra partem basalem 1.5 ad 2 mm latam subcylindricam pauca mm longam sensim usque ad duas tertias longitudinis dilatata, deinde paulum attenuata denique in clavam obtusam incrassata, postea usque ad pauca mm supra basin dehiscens in lacinia 5 parte superiore reflexa 4 ad 6 mm longa lanceolata-spathulata, apice acutiuscula paulum incrassata. Filamenti pars libera 3 ad 5 mm longa; anthera oblonga obtusissima, 1.5 ad 2.5 mm longa, loculis 4 continuis, basi cum filamento subarticulata. Stylus filiformis, sub stigmate vix attenuatus, corolla c. 4 mm longior; stigma styli apice vix crassius, obtusissimum. Cetera ignota.

In my opinion, *Loranthus incarnatiflorus, Preslii, Fenicis,* and *maritima* are too little different to be distinguished as separate species. Though the types of the four species united by me are somewhat different, the resulting species is less polymorphic than several of the genus such as *A. Haenkeana.* It is known to grow at different altitudes, from sea level to 1,725 m elevation, and this may be one of the causes of its relative polymorphy. The distribution is chiefly in Mindanao, but it has been collected in northern Luzon. The color of its corolla is said to be red in different hues, entirely so or with green apices of the corolla limbs.

LUZON, Ilocos Sur Province, Tagudin, *Bur. Sci. 10081 McGregor* (M). MINDANAO, Surigao Province, Tamanao, seashore, *Bur. Sci. 15824 Fénix* (M, type, Be, cotype, of *Loranthus maritimus* Merr.) : Agusan Province, Mount Urdaneta (Cabadbaran), 1,725 m altitude, *Elmer 1374* (M, UC, NY, B, L, U, Be, cotypes of *Loranthus Preslii* Elm.) : Davao Province, Mount Apo, Todaya, 1,350 m altitude, *Elmer 11817* (M, NY, B, L, U, Be, cotypes of *Loranthus incarnatus* or *L. incarnatiflorus* Elm.) ; Baganggo, *Bur. Sci. 15852 Fénix* (M), type of *Loranthus Fenicis* Merr.; Mount Mayo, 600 m, *Bur. Sci. 49412 Ramos and Edaño* (M, UC, NY) : Lanao Province, Camp Keithley, Lake Lanao, *Clemens s. n.* (M, Be).

6. AMYEMA LUZONENSIS (Schulten) Danser.

Loranthus luzonensis SCHULT., Syst. 7 1 (1829) 104; DC., Prodr. 4 (1830) 295; BLUME, in Schult., Syst. 7 2 (1830) 1612, 1730; Fl. Javae, Lor. (1830) 14; DIETR., Syn. 2 (1840) 1075; ETTINGSH., Denkschr. Akad. Wiss. Wien. Math.-Naturwiss. Cl. 32 (1872) 53; BENTH. and HOOK. F., Gen. Pl. 3 (1880) 208; FER.-VILL., Nov. App. (1880) 183; VIDAL, Pl. Cuming. Philip. (1885) 77, 140; Rev. Pl. Vasc. Fil. (1886) 232; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 185, 188; VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1885) 253; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128; MERR., Philip. Journ. Sci. § C 4 (1909) 135; Enum. Philip. Fl. Pl. 2 (1923) 106.

Dendrophthoe luzonensis G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 419; MIQ., Fl. Ind. Bat. 1 1 (1856) 818; ETTINGSH., Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Cl. 32 (1872) 66.

Stemmatophyllum luzonense VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 505, 506, 546.

Amyema luzonensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 296 excl. synon.; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 31.

Subgracilis, stolonibus plantae nutrici affixa, ramosissima, dichotoma passim trichotoma; inflorescentiis floribusque juventute dense, calicibus exceptis postea minus dense velutinis, ceterum glabra. Ramuli teretes nodis valde incrassatis, internodiis inter folia adulta 1 ad 6 cm longis, 0.75 ad 2 mm crassis, nodis circiter duplo crassioribus. Folia quaternata verticillata, sessilia, oblonga ad obovata, 1 ad 6 cm longa, 0.8 ad 2 cm lata, basi anguste rotundata, apice late rotundata, in herbario crassa duraque, utrinque opaca, fragilia, facie inferiore plerumque costa tantum visibili, facie superiore nervis omnibus invisibilibus vel costa et nervis lateralibus crassioribus indistinctis. Inflorescentiae singulae in axillis foliorum, et paucae ad nodos nuper defoliatos, umbellae pedunculatae triadum floribus omnibus pedicellatis; pedunculus teres, apice basique paulum incrassatus, 7 ad 30 longus, medio c. 0.5 ad 0.75 mm crassus; radii plerumque 4, rarius 2 vel 3 vel ad 7, teretes, 1 ad 4 mm longi, 0.25 ad 0.35 mm crassi; pedicelli florum lateralium iam subaequales, iam longitudine differentes, teretes, 0.5 ad 2 mm longi, florum mediorum nonnunquam fere nulli; bracteae omnes ad basin calicis insertae, ovatae semiamplexicaules, 0.5 ad 2 mm longae, obtusae vel acutae vel acuminatae. Calicis tubus subcylindricus, paulum infundibuliformis, 2 ad 2.5 mm longus, apice c. 1 mm latus, limbus infundibuliformis vel cupuliformis lobis brevibus obtusis vel integer, 0.75 ad 1 mm longus. Corolla statu alabastri adulti longe cylindrica, 25 ad 38 mm longa, 1 ad 2 mm lata, cylin-

drica, parte superiore 6 ad 8 mm longa anguste ellipsoidea sesquiplo crassiore excepta, apice plerumque obtusa rarius acuta vel breve acuminata, postea dehiscens in petala 4 lineares parte superiore 5 ad 7 mm longa reflexa paulo latiore. Filamenti pars libera 0.5 ad 3 mm longa; anthera 2 ad 4 mm longa, apicem obtusiusculum versus angustata, loculis 4 continuis. Stylus filiformis, corolla 1 ad 2 mm longior (ad 40 mm longa), sub stigmate tantum paulum attenuata; stigma stylo aequicrassum, obtusissimum. Fructus ellipsoides, vel subpiriformis, 6 mm longus 4 mm diametro, calicis limbo erecto vel infundibuliformi 1.5 mm longo coronatus.

Amyema luzonensis is, with certainty, collected in Luzon only, but is widely spread in this island at low and medium altitudes (up to 900 m). The color of its corolla indicated in the herbarium labels is yellow or orange-yellow, sometimes partly red, or green at the tip.

Philippines, without exact locality, *Cuming 490* (L); *1964* (M, NY, L, Be); *1956* (M), cotype of *Stemmatophyllum sessilifolium* Van Tiegh.? LUZON, Ilocos Norte Province, Bonbon, *Bur. Sci. 7665 Ramos* (B. L.); Bangui, *Bur. Sci. 43587 McGregor* (M, UC, Be), *Bur. Sci. 27650 Ramos* (M, UC, B); Burgos, low altitude, *Bur. Sci. 32878 Ramos* (M, NY, B, S, L): Ilocos Sur Province, San Esteban, *Clemens 17854 bis* (UC, B, S): Abra Province, no locality, *Bur. Sci. 7250 Ramos* (M); Lagayan, 50 m altitude, *F. B. 23995 De la Peña* (M, B): La Union Province, Bauang, *Elmer 5693* (M, NY, B, S, Be): Mountain Province, Benguet, *F. B. 15893 Bacani* (M); 900 m altitude, *F. B. 10922 Curran* (N, NY, B, L, Be): Zambales Province, *F. B. 5927 Curran* (M, NY, Be); Botulan, *Warburg 13324* (Be); Maracapas, *F. B. 11050 Zschokke* (M, NY), with *Viscum articulatum;* Anulig, low altitude, *Bur. Sci. 44569 Ramos and Edaño* (M, UC): Bataan Province, Limay, *F. B. 19137 Curran* (M); Mount Limay, 40 to 50 m, *Bur. Sci. 10851 Foxworthy* (M). MINDANAO, without exact locality, very imperfect materials, hence very doubtful as to the locality, *Schadenberg s. n.* (Br).

7. AMYEMA BENGUETENSIS (Merrill) Danser.

Loranthus benguetensis MERR., Philip. Journ. Sci. § C 4 (1909) 134; MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; MERR., Enum. Philip. Fl. Pl. 2 (1923) 103.

Amyema benguetensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 294; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 26.

Stolonibus plantae nutrici affixa, subgracilis, valde ramosa, plerumque dichotoma, omnis glabra. Ramuli teretes nodis incrassatis; internodia inter folia adulta 1 ad 5 cm longa, 1 ad 2.5 mm crassa, nodis duplo vel triplo crassioribus. Folia quaternata verticillata, sessilia, plerumque oblonga ad obovata, raro suborbicularia vel lanceolata, 1 ad 4.5 cm longa, 0.5 ad 1.8 cm lata, basi anguste rotundata vel acuta, apice rotundata, crassiuscula et fragilia, utrinque opaca vel facie superiore sublucida, costa facie inferiore tantum distincta, nonnunquam costa et nervi crassiores facie superiore indistincti. Inflorescentiae umbellae pedunculatae triadum plerumque 4, saepe 2 vel 3, raro vel 6, floribus omnibus pedicellatis, singulae in axillis foliorum adultorum vel nuper delapsorum; pedunculus 10 ad 20 mm longus, 0.3 ad 0.5 mm crassus, teres, apice basique leviter incrassatus; radii 1.5 ad 4 mm longi, teretes 0.25 mm crassi; pedicelli florum lateralium 1 ad 2 mm longi, florum mediorum aequilongi vel breviores, raro subnulli; bracteae ovatae plerumque acutae, c. 0.75 mm longi. Calicis tubus infundibuliformis vel obovatus, c. 2 mm longus apice 1 mm latus; limbus 0.5 ad 0.75 mm longus, integer vel subinteger, infundibuliformis. Corolla statu alabastri adulti subcylindrica, 13 ad 20 mm longa, 1 mm lata, parte superiore 6 mm longa paulo crassior, apicem subacutam versus conice attenuata, postea dehiscens in petala 5 (?) linearia, 0.8 mm lata, parte superiore 5 mm longa reflexa, anguste triangula obtusiuscula. Filamenti pars libera brevissima, 0.25 ad 0.5 longa; anthera 2 ad 2.5 mm longa, obtusa. Stylus filiformis, sub stigmate vix attenuata, corolla paulo longior; stigma styli apice paulo crassius, obtusissimum. Cetera ignota.

Restricted to the mountains of northern Luzon, and apparently parasitic only on *Pinus insularis*, at an altitude of 1,200 to 1,600 m. Father Vanoverbergh describes the flowers as yellow in the lower portion, red in the upper.

LUZON, Mountain Province, Benguet, *Bur. Sci. 2712 Mearns* (M, Be); Baguio, *Williams 1989* (NY); Mount Pulog, 1,200 m, *F. B. 16064 Curran, Merritt, and Zschokke* (M, NY, Be), type of *Loranthus benguetensis* Merr.; Bontoc, 1,500 to 1,600 m, *Vanoverbergh 1098* (M, Be).

8. **AMYEMA ACUTA (Van Tieghem) Danser.**

Stemmatophyllum acutum VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 546.

Loranthus acutus ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128; MERR., Philip. Journ. Sci. § C 4 (1909) 135; Enum. Philip. Fl. Pl. 2 (1923) 102.

Amyema acuta DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 293; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 25.

Stolonibus plantae nutrici affixa; ramosissima, plerumque dichotoma, rarius 3- ad 5-chotoma; glabra, inflorescentiis, calicibus et corollis juvenilibus dense puberulis exceptis. Ramuli teretes, nodis incrassatis, internodiis folia adulta ferentibus 3 ad 10 cm longis, 1 ad 2.5 mm crassis, nodis ad duplo crassioribus. Folia verticillata plerumque quaternata rarius ad apices ramulorum opposita; petiolus subtus rotundatus supra plana vel leviter canaliculata, basi paulum incrassatus, difficile a lamina distinguendus, 3 ad 13 mm longus, 1 ad 1.5 mm latus; lamina oblonga vel ovato-oblonga ad lanceolata vel ovato-lanceolata vel ovato-lanceolata, 4 ad 12 cm long, 1 ad 4 cm lata, basi plerumque in petiolum attenuata raro rotundata, apicem obtusum vel obtusiusculum versus plerumque acuta vel acuminata, crassiuscula, subfragilis, utraque facie opaca, penninervis, facie inferiore costa valde prominente nervisque lateralibus vix visibilibus vel omnino invisibilibus, facie superiore costa impressa nervis ceteris invisibilibus. Inflorescentiae gregatim circa nodos foliatos vetustiores et nodos defoliatos, in scrobiculis corticis insertae, umbellae pedunculatae triadum plerumque 4, floribus omnibus pedicellatis; pedunculus teres basi clavatim incrassatus, 6 ad 20 mm longus, 0.5 ad 0.75 mm crassus; radii teretes, 1 ad 5 mm longi, 0.25 ad 0.35 mm crassi; pedicelli teretes, florum lateralium 1.5 ad 2 mm longi, mediorum 0.75 ad 1 mm longi; bracteae florum omnium ad basin calicis insertae, ovatae convexae semiamplexicaules, obtusae vel acutae, 0.75 ad 1 mm longae. Calicis tubus obovato-infundibuliformis, 1.5 ad 2.5 mm longus, 1 ad 1.25 mm latus, limbus brevis, 0.25 mm longus vel etiam brevior, integer vel indistincte irregulariterque dentatus, erectus vel cupuliformis. Corolla statu alabastri adulti 17 ad 25 mm longa, ad 4 ad 5 mm ab apice leviter constricta, sub constrictione ad 2 ad 3 mm dilatata, supra constrictionem ellipsoides paulum incrassata, obtusissima, postea dehiscens in petala 4 vel 5 parte infra constictionem lineari c. 1.25 mm lata, parte superiore 5 mm longa reflexa lingulata 0.75 ad 1 mm lata obtusa. Filamenti pars libera c. 2.5 ad 3 mm longa; anthera 2 ad 3 mm longa c. 0.5 mm lata obtusissima, loculis 4 continuis. Stylus corolla subaequilongus, filiformis, prope stigma paulo tenuior, sulcis longitudinalibus 5 vel 4; stigma styli apice vix crassius, obtusum.

Fructus ellipsoides vel paulum obovatus, ad 8 mm longus 5 mm diametro, calicis limbo erecto incrassato coronatus.

Amyema acuta appears to occur in northern and central Luzon only, and to be common there at medium and high altitudes (780 to 2,400 m). The color of its corolla is indicated on the herbarium labels as red, or orange, or yellow, or red in the lower portion, and yellow, orange, or yellowish green in the upper; the color of the fruit is once indicated as red.

Philippine Islands, without exact locality, *Cuming 1973* (M), cotype of *Stemmatophyllum acutum* Van Tiegh. LUZON, Cagayan Province, Mount Balatongan, summit, 780 m altitude, *Bur. Sci. 78511 Edaño* (M): Mountain Province, Benguet, Baguio, *Elmer 8640* (NY, B, L); *Williams 1021* (M, NY), *1022* (NY); 1,300 m altitude, *Merrill 9701* (M); 1,200 m altitude, *Bur. Sci. 45036 Ramos and Edaño* (M, UC, NY), 1,770 m altitude, *F. B. 15982 Bacani* (M, Be), behind Easter School, *Clemens 16452* (M, UC, NY), *5887* (UC) Busol Forest Reserve, 1,500 m altitude, *F. B. 31368 Esguerra* (M, NY); Baguio to Ambuklao, Trinidad, *Williams 1319* (M, NY), *Elmer 5809* (M, NY, Be); Mountain Trail, Km 8–10, *Bur. Sci. 78109 Quisumbing* (M); 1,350 m altitude, *Bur. Sci. 45169 Ramos and Edaño* (M, NY, B, S); Mount Santo Tomas, 2,280 m altitude, *Bur. Sci. 82286 Quisumbing* (M); Bauco, 1,290 m altitude, *Vanoverbergh 221* (M, L), 1,750 m altitude, *Vanoverbergh 1782* (M); Pauai, 2,400 mm altitude, *Bur. Sci. 31867 Santos* (M, UC); Ifugao Subprovince, Mount Polis, *Bur. Sci. 19836 McGregor* (M): Nueva Ecija Province, *F. B. 22439 Alvarez* (M, L): Rizal Province, *Loher 13952* (M, B), *14267* (M, UC); Montalban, *Loher 12342* (M, UC), *12791* (M); Mount Lumutan, 930 m altitude, *Bur. Sci. 42150 Ramos* (M); Mount Irig, 1,230 m altitude, *Bur. Sci. 42193 Ramos* (M, S).

9. AMYEMA MEDINILLICOLA (Merrill) Danser.

Loranthus medinillicola MERR., Philip. Journ. Sci. § C 9 (1914) 287; Enum. Philip. Fl. Pl. 2 (1923) 106.

Amyema medinillicola DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 297; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 31.

Stolonibus plantae nutrici affixa; glabra, floribus inflorescentiisque breve velutinis exceptis, indumento calicis permanente, ceterum tenuescente. Ramuli graciles simplices, teretes, internodiis 1 ad 4, 1 ad 5 cm longis, 1.5 ad 3 mm crassis, nodis

sesquiplo vel duplo crassioribus. Folia verticillata quaternata; petiolus supra planus vel caniculatus, subtus rotundatus, 3 ad 5 mm longus, 0.75 ad 1 mm crassus; lamina lanceolata, 5 ad 10 cm longa, 1 ad 3 cm lata, basi in petiolum contracta vel attenuata, apicem obtusiusculum versus acuminata, crassiuscula, fragilis, utrinque opaca, costa facie inferiore prominente, superiore plana distincta, nervis ceteris invisibilibus vel crassioribus utrinque indistinctis. Inflorescentiae e stolonibus et (testibus cicatricibus) ex axillis foliorum vetustiorum procrescentes, umbellae pedunculatae triadum 4, floribus omnibus pedicellatis; pedunculus 17 mm longus, c. 0.75 mm crassus, basi apiceque incrassatus; radii 4, 1 ad 2 mm longi, c. 0.4 mm crassi; pedicelli florum lateralium 1.5 ad 2 mm longi, mediorum c. 1 mm longi; bracteae c. 1 mm longae, ovatae, acutae. Calicis tubus 1.5 mm longus, campanulato-infundibuliformis, apice 1 mm latus; limbus 0.5 ad 0.75 mm longus, infundibuliformis, integer vel levissime dentatus. Corolla petalis 4 linearibus, 28 mm longis a basi ad apicem paulum dilatatis medio c. 1.5 mm latis parte superiore 7 mm longa reflexa lingulata obtusa. Filamenti pars libera 3 mm longa; anthera c. 3.5 mm longa a basi ad apicem subacutum sensim attenuata, loculis 4 continuis. Stylus filiformis, in paucis mm superioribus paulum attenuatus; stigma stylo aequicrassum, obtusissimum. Cetera ignota.

Amyema medinillicola has the foliage of *A. acuta,* and the flowers and inflorescences of *A. luzonensis.* The general habit of the type specimen is peculiar, as from long slender creepers originate the short unbranched stems and the inflorescences; this, however, may later prove to be only the case in weak specimens that are not well attached to the host plant. The same uncommon habit was shown by the type specimen of *Amyema celebica;* stronger specimens of the same species proved to have a normal habit.

LUZON, Mountain Province, Ifugao, Mount Polis, mossy forest, *Bur. Sci. 19842 McGregor* (M), type, flower bright yellow, reddish toward base, fruit white.

10. AMYEMA MOSEA Danser sp. nov. Plate 1, figs. 5 to 7.

Omnis glabra, subgracilis. Stolonibus plantae nutrici affixa. Ramuli parce ramosi, internodiis teretibus, folia adulta ferentibus 2.5 ad 8 cm longis, 1 ad 2 mm crassis, nodis ad duplo crassioribus. Folia verticillata quaternata; petiolus basi teres

paulum incrassatus, laminam versus supra paulum applanatus, 6 ad 10 mm longus, 0.75 ad 1 mm crassus; lamina lanceolata, 4.5 ad 8 cm longa, 1 ad 2 cm lata, basi sensim in petiolum attenuata, apicem obtusiusculum versus acuta vel paulum acuminata, crassiuscula, in herbario coriacea, fragilis, utrinque opaca, facie inferiore costa paulum prominente nervis lateralibus leviter coloratis, facie superiore omnibus nervis invisibilibus. Inflorescentiae singulae in axillis defoliatis, umbellae pedunculatae triadum 2 vel 3, floribus omnibus pedicellatis; pedunculus teres, basi paulum dilatatus, 3 ad 5 mm longus, 0.3 ad 0.5 mm crassus, post anthesim ad 7 mm elongatus ad 0.65 mm incrassatus; radii 2 vel 3 teretes, 1 ad 1.5 mm longi; pedicelli florum lateralium paulo longiores quam 0.5 mm, mediorum paulo breviores quam 0.5 mm, teretes; bracteae ovatae semiamplexicaules, obtusae vel acutiusculae, 0.5 ad 0.75 mm longae, semper ad basin calicis insertae. Calicis tubus infundibuliformi-obovatus, 1.25 ad 1.5 mm longus, apice 1 mm latus, limbus infundibuliformis vel cupulatus, c. 0.5 mm longus, integer vel levissime dentatus. Corolla statu alabastri adulti subcylindrica c. 20 mm longa ad duas tertias paulum dilatata ibi 2.5 mm lata, parte superiore 3.5 mm longa versus apicem obtusum conica, postea dehiscens in petala 4 linearia, e basi rotundata usque ad 3.5 mm ad apice c. 2 mm lata, parte superiore triangulari obtusa. Antherae subsessiles, oblongae, c. 3 mm longae obtusae. Stylus filiformis, c. 22 mm longus, sub stigmate paulum attenuatus; stigma subglobosum, obtusissimum, stylo aequicrassum. Cetera ignota.

The specific name of this species is from Moses (Span.: Moisés), the Hebrew lawgiver, as the type was collected on the summit of Mount Moises. The description is after the type only. The second specimen mentioned is different by stems somewhat coarser, leaves somewhat broader, 2 to 4 mm broad and without colored nerves, the peduncle somewhat longer, after flowering up to 8 mm long, the umbel rays up to 2 mm, the pedicels of the lateral flowers up to 1 mm long, the filaments nearly 1.5 mm long, the anthers nearly 2 mm, the style shorter, 16 to 18 mm long.

LUZON, Isabela Province, Mount Moises, near summit, 1,050 m altitude, *Bur. Sci. 47338 Ramos and Edaño* (M, type, UC, NY), flower yellow, type: Mountain Province, Bontoc, Mount Polis, 600 m altitude, *Bur. Sci. 37700 Ramos and Edaño* (M, L, Be), flower yellow.

11. AMYEMA VERTICILLATA (Merrill) Danser.

Cleistoloranthus verticillatus MERR., Philip. Journ. Sci. § C 4 (1909) 150; MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; KRAUSE, in Engl. and Pr., Nat. Pfl. fam. Nacht. 4 zu 2–4 (1915) 73.

Loranthus appendiculatus MERR., Philip. Journ. Sci. § C 7 (1912) 78; Enum. Philip. Fl. Pl. 2 (1923) 102.

Amyema verticillata DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 299; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 34.

Omnis glabra. Ramuli teretes, nodis incrassatis, internodiis folia adulta ferentibus 2 ad 8 cm longis, 1 ad 1.25 cm crassis, nodis sesquiplo ad duplo crassioribus. Folia verticillata quaternata; petiolus supra plana subtus rotundata, basi paulum incrassatus, difficile a lamina distinguendus, 3 ad 10 mm longus, 0.5 ad 1 mm crassus; lamina oblongo-lanceolata, 3 ad 8 cm longa, 1 ad 3 cm lata, basi cuneata vel magis in petiolum attenuata, maxima latitudine circa medium, apicem obtusiusculum versus acuta vel acuminata, tenuiter coriacea, fragilis, opacissima, penninervis, nervis lateralibus incurvatis costa supra plana plerumque indistinctissima, subtus prominente, nervis ceteris utraque facie invisibilibus vel crassioribus indistinctis. Inflorescentiae umbellae triadum 4 pedunculatarum, floribus lateralibus pedicellatis mediis subsessilibus, singulae in axillis foliorum vetustiorum vel gregatim in nodis defoliatis; pedunculus basi apiceque paulum incrassatus ceterum teres, 10 ad 15 mm longus, 0.5 mm crassus; radii teretes, 5 ad 7 mm longi, 0.5 ad 0.3 mm crassi; pedicelli florum lateralium 1 ad 1.5 mm longi, mediorum nulli vel subnulli; bracteae ovatae subsemiamplexicaules, acutae del obtusae, c. 1.5 mm longae saepe paulo irregulariter incisae. Calicis tubus breve campanulatus subobovatus, c. 1.5 mm longus et latus; limbus erectus, margine irregulariter fibrosus, c. 0.25 ad 0.5 mm longus. Corolla statu alabastri adulti 13 ad 14 mm longa, parte inferiore 10 mm longa cylindrica 1.25 ad 1.5 lata, supra eam partem primum paulum attenuata deinde incrassata in clavam obtusissimam, prope apicem verticillo appendicum dorsalium late cuneatarum apicibus irregulariter incisarum vel nonnunquam bilobarum 0.5 mm longarum ornatam, postea partita in petala 4 linearia, e basi ad apicem paululum dilatata, c. 1 mm lata. Filamenti pars libera 3.5 mm longa; anthera ovata, c. 1.25 mm longa, obtusa, loculis 4 continuis. Stylus vix longior quam corolla, filiformis, sub stigmate paulum attenuatus;

stigma stylo aequicrassum, obtusissimum. Fructus ellipsoides, 6 mm longus 5 mm crassus, calicis limbo permanente erecto coronatus.

Merrill [3] considers the dorsal appendages of the petals as the tips, the tips as ventral appendages. That this is wrong is shown by the fact that the dorsal appendages never are closed in bud, and that similar appendages also occur in *Macrosolen curtiflorus* and in several species of the African genus *Tapinanthus*.

Amyema verticillata is restricted to northern Luzon and occurs there at higher altitudes (1,670 to 2,500 m). On the labels the color of the flower is indicated as pink or red, the fruit as red.

LUZON, Mountain Province, Benguet, Mount Pulog, 2,500 m altitude, *F. B. 16229 Curran, Merritt, and Zschokke* (M, Be), type of *Cleistoloranthus verticillatus* Merr., 2,400 m altitude, *Bur. Sci. 44928* (NY, UC, B) and *44934* (M, UC, S, B) *Ramos and Edaño*, 2,100 m altitude, *Bur. Sci. 44978 Ramos and Edaño* (M, UC); Mount Osdung, 2,300 m, *Bur. Sci. 82502 Quisumbing and Sulit* (M); Bontoc Subprovince, Malamey, Pinggat, 1,670 m altitude, *Vanoverbergh 1293* (M, Be).

12. AMYEMA CELEBICA (Van Tieghem) Danser.

Rhizanthemum celebicum and *Forsteni* VAN TIEGHEM, in Morot, Journ. de Bot. 15 (1901) 364.

Loranthus bicoloratus ELM., Leafl. Philip. Bot. 2 (1908) 470; MERR., Philip. Journ. Sci. § C 4 (1909) 137; Enum. Philip. Fl. Pl. 2 (1923) 103.

Loranthus lanaensis MERR., Philip. Journ. Sci. § C 4 (1909) 136; Enum. Philip. Fl. Pl. 2 (1923) 105.

Amyema celebica DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 294; 11 (1931) 328; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 27.

Amyema lanaensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 296; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 30.

Omnis glabra; stolonibus plantae nutrici affixa. Ramuli subrobusti dichotomi, internodiis teretibus apicem versus paulum incrassatis et applanatis, folia adulta ferentibus ad 10 cm longis, 2.5 ad 5 mm crassis. Folia plerumque opposita rarius sparsa vel passim verticillata quaternata; petiolus robustus supra basin paulum incrassatam teres laminam versus supra plana vel sub-

[3] Philip. Journ. Sci. § C 4 (1909) 150; § C 7 (1912) 78–79.

canaliculata, 10 ad 22 mm longus, 2 ad 3 mm latus, difficile a lamina distinguendus; lamina ovato-oblonga ad lanceolata, 9 ad 20 cm longa, 3 ad 7 cm lata, basi in petiolum attenuata, apicem obtusiusculum versus leviter acuminata, crasse coriacea, utraque facie opaca, penninervis, costa supra plana distincta, subtus valde prominente, nervis lateralibus crassioribus utraque facie indistinctis, venis tenuioribus invisibilibus. Inflorescentiae umbellae pedunculatae triadum plerumque 4 rarius 3 vel 2, floribus omnibus pedicellatis, paucae in axillis defoliatis vel passim in stolonibus; pedunculus teres, basi clavatus, 5 ad 17 mm longus, 0.3 ad 0.5 mm crassus; radii teretes, 2 ad 4 mm longi; pedicelli teretes, 2 ad 4 mm longi, florum lateralium paulo longiores quam florum mediorum; bracteae omnes ad basin calicis, ovatae, obtusae, semiamplexicaules, 0.75 ad 1 mm longae. Calicis tubus infundibuliformis vel paulum obovatus vel pyriformis, c. 3 mm longus apice 1.5 mm latus; limbus infundibuliformis, integer, 1.25 mm longus. Corolla statu alabastri adulti subcylindrica, 27 ad 32 mm longa, a basi ad medium dilatata ad 2.5 mm lata, deinde angustata, ad 6 ad 9 mm ab apice c. 1.5 mm lata, parte superiore in clavam ellipsoidem acuminatam incrassata, postea dehiscens in petala 5 linearia, parte superiore 6 ad 9 mm longa reflexa, subacuta. Filamenti pars libera 3 mm longa; anthera 2.5 ad 3.5 mm longa, subobtusa, loculis 4 continuis. Stylus 1 ad 3 mm longior quam corolla, in 2 mm superiora paulum attenuatus; stigma paulo crassius quam styli apex, obtusissimum. Fructus obovatus, c. 9 mm longus, 6 ad 7 mm crassus.

Amyema celebica has been collected in Negros and Mindanao, and south of the Philippines in Karakelang and Celebes, at low and medium altitudes. The specimens enumerated below as doubtful seem to be transition forms to *Amyema basilanensis*, and I should have united the latter species with *A. celebica*, if on these materials flowers were not nearly absent. Probably *Amyema basilanensis* is only a small-flowered form of *A. celebica*, and then the number *Wenzel 3197*, cited as doubtful under *A. basilanensis*, also belongs to the intermediate forms.

The corolla of *A. celebica* is indicated on herbarium labels as yellow or red, with green or yellowish green tips.

NEGROS, Oriental Negros Province, Cuernos Mountains, Dumaguete, 760 m altitude, *Elmer 9550* (M, NY, B, L), cotypes of *Loranthus bicoloratus* Elmer. MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, *Clemens 777* (M, type, B, Be, cotypes of

Loranthus lanaensis Merr.): Agusan Province, Butuan, Bunaoan, Tigpon River, 15 m altitude, *Weber 1033* (M): Surigao Province, low altitude, *Bur. Sci. 34507 Ramos and Pascasio* (M, NY, B, L, S, Be); Lake Mainit, *Bur. Sci. 33432 Ramos and Convocar* (M), *Loher s. n.* (UC).

Doubtful specimens: MINDANAO, Surigao Province, *Wenzel s. n.* (M); Placer, 150 m altitude, *Wenzel 2678* (M, UC, B), *2851* (M); *3049* (M, UC) *3153* (UC), *3176* (UC, B): Davao Province, Davao, *Copeland 376* (M, NY, Be).

Further distribution: Karakelang and Celebes.

13. AMYEMA BASILANENSIS (Merrill) Danser.

Loranthus basilanensis MERR., Philip. Journ. Sci. § C 4 (1909) 134; Enum. Philip. Fl. Pl. 2 (1923) 102.

Amyema basilanensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 294; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 26.

Omnis glabra; stolonibus plantae nutrici affixa. Ramuli subrobusti dichotomi, internodiis teretibus nodis incrassatis, folia adulta ferentibus ad 11 cm longis, 2.5 ad 5 mm crassis, nodis ad sesquiplo crassioribus. Folia sparsa saepe subverticillata; pertiolus e basi tereti versus laminam supra canaliculatus, subtus rotundatus, 7 ad 15 cm longus, 1 ad 2.5 mm crassus; lamina oblonga, 5 ad 12 cm longa, 3 ad 5 cm lata, e basi cuneata vel rotundata in petiolum contracta, apicem obtusiusculum versus plerumque breve acuminata, crasse coriacea, utraque facie opaca, costa supra plana distincta subtus valde prominente, nervis lateralibus utrinque vix visibilibus. Inflorescentiae umbellae pedunculatae triadum 4, floribus omnibus pedicellatis, paucae in axillis foliorum vel gregatim in nodis defoliatis, passim etiam in stolonibus, in scrobiculis corticis insertae; pedunculus teres, basi apiceque paulum incrassatus, 2 ad 6 mm longus c. 0.6 mm crassus; radii teretes, 0.5 ad 2 mm longi, c. 0.3 mm crassi; pedicelli florum mediorum 0.5 ad 1 mm longi, lateralium 0.75 ad 1 mm longi; bracteae ovatae, obtusae, 0.5 ad 0.7 mm longae, semiamplexicaules. Calicis tubus infundibuliformis vel paulum piriformis, c. 1.5 ad 2 mm longus, apice 1 mm latus; limbus infundibuliformis vel erectus, integer c. 0.6 mm longus. Corolla statu alabastri adulti c. 17 mm longa, subcylindrica, a basi ad medium ad 1.5 mm dilatata, ad c. 3 mm sub apice paulum constricta, parte superiore ellipsoides obtusiuscula vel subacuminata, postea dehiscens in petala 5 sublinearia obtusiuscula,

3 mm ab apice reflexa. Filamenti pars libera 0.5 mm longa; anthera 2.5 mm longa, obtusa, loculis 4 continuis. Stylus c. 18 mm longus, filiformis, sub stigmate paulum attenuatus; stigma ellipsoides obtusum, stylo paulo crassius. Cetera ignota.

Amyema basilanensis probably is a small-flowered form of *A. celebica,* the doubtful specimen mentioned below, and the doubtful ones enumerated under *A. celebica,* forming a number of intermediate forms. The above description is made after the type and the specimens collected by Hallier in Basilan, which are without any doubt specifically identical. The specimen from Placer, *Wenzel 3197,* has narrower leaves, 1.5 to 5 cm broad; thinner peduncles, about 0.5 mm thick; umbel rays longer, 3 to 4 mm long; central flowers of the triads nearly sessile; lateral flowers with pedicels nearly 3 mm long; bracts nearly 1.25 mm long, obtuse or acute; corolla 17 to 19 mm long; style 18 to 22 mm long.

BASILAN, *Hallier 439* (M, NY); Moro, Point Matangal, 3 m altitude, *F. B. 3447 Hutchinson* (M), flower yellow, type of *Loranthus basilanensis* Merr.

Doubtful specimen: MINDANAO, Surigao Province, Placer, 150 m altitude, *Wenzel 3197* (M, UC, NY, B).

14. AMYEMA POLILLENSIS (C. B. Robinson) Danser.

Loranthus polillensis C. B. ROBINSON, Philip. Journ. Sci. § C 6 (1911) 200; MERR., Enum. Philip. Fl. Pl. 2 (1923) 109.

Amyema polillensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 298; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 32.

Omnis glabra. Ramuli subrobusti, internodiis teretibus, nodis incrassatis, folia adulta ferentibus 4 ad 8 cm longis, 3 ad 6 mm crassis, nodis fere duplo crassioribus. Folia verticillata, 5 ad 7 nata; petiolus supra basin paulum incrassatam teres, laminam versus supra leviter canaliculatus, 10 ad 20 mm longus, 1.25 ad 2 mm crassus; lamina elliptica vel oblonga, basi acuta vel paulum in petiolum contracta, apicem obtusiusculum vel acutum versus acuta vel acuminata, crasse coriacea, fragilis, utraque facie opacissima, costa supra plana distincta, subtus valde prominente nervis lateralibus crassioribus utrinque indistinctis vel invisilibus. Inflorescentiæ passim singulae in axillis foliorum et gregatim in axillis foliorum vetustiorum et in nodis defoliatis, umbellae simplices pedunculatae floribus 4 ad 6; pedunculus teres, basin versus sensim, apicem versus abrupte incrassatus,

8 ad 11 mm longus, 0.3 ad 0.5 mm crassus; pedicelli teretes, c. 0.3 mm crassi; bracteae late ovatae acutae vel obtusae, semiamplexicaules, c. 1 mm longae. Calicis tubus infundibuliformis vel obovatus, 2 ad 2.5 mm longus, apice c. 1.5 mm latus; limbus infundibuliformis vel cupuliformis, integer, c. 0.5 and 0.75 mm longus; corolla dehiscens in petala 5 sublinearia, 21 ad 23 mm longa, parte superiore c. 5 mm longa reflexa. Filamenti pars libera 1 mm (2 mm ex Robinson) longa; anthera 2.5 mm longa, loculis 4 continuis, obtusa. Stylus 23 ad 25 mm longus, filiformis, sub stigmate paulum attenuatus; stigma stylo aequicrassum, obtusissimum. Cetera ignota.

This description is based on all the materials available. Warburg's specimen differs from the type specimen only in the corolla being 2 mm shorter.

Amyema polillensis is nearly related to *A. umbellata* from Boeroe (Moluccas), and differs from this species chiefly by glabrous inflorescences, less-flowered umbels, much shorter corollas and shorter filaments and anthers.[4]

POLILLO, *Bur. Sci. 10384 McGregor* (M), type, flower yellow. LUZON, Tayabas Province, Binangonan (coast opposite Polillo), *Warburg 13327* (Be).

15. AMYEMA FASCICULATA (Blume) Danser.

Loranthus fasciculatus BLUME, Bijdr. 13 (1825) 661.
Scurrula fasciculata G. DON., Gen. Hist. Dichl. Pl. 3 (1834) 421.
Dendrophthoe fasciculata MIQ., Fl. Ind. Bat. 1 1 (1856) 815.
Loranthus mirabilis VAN HUERCK and MUELL., Arg., Act. Soc. Helv. Sc. Nat. 55 (1872) 47 n. v.; MERR., Philip. Journ. Sci. 1 Suppl. (1906) 187 excl. specim.; § C 4 (1909) 135; Enum. Philip. Fl. Pl. 2 (1923) 107.
Stemmatophyllum Cumingii VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 505, 546, 547.
Loranthus Cumingianus ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128.
Amyema fasciculata DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 295; 11 (1931) 330; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 27.
For a more extensive list of synonyms cfr. Bull. Jard. Bot. Buitenzorg III 11 (1934) 330.

Glabra, exceptis inflorescentiis floribusque valde juvenilibus dense breviterque postea tenuius puberulis. Ramuli ramosissimi dichotomi rarius tri- vel tetrachotomi, vel ex internodiis

[4] Cfr. Bull. Jard. Bot. Buitenzorg III 11: 352.

ramulos singulos laterales proferentes, internodiis juvenilibus teretibus nodis valde incrassatis folia, adulta ferentibus 2 ad 13 cm longis, 1 ad 4 mm crassis. Folia verticillata quaternata; petiolus supra basin paulum incrassatam teres, laminam versus supra applanatus, 2 ad 8 mm longus, 1 ad 3 mm crassus; lamina elliptica vel oblonga vel obovato-elliptica, 4 ad 15 cm longa, 2 ad 6 cm lata, basi acuta in petiolum attenuata, obtusissima vel apicem obtusum versus breve acuminata, utraque facie opaca, crassiuscula et fragilis, costa supra plana visibilis, subtus prominente, nervis ceteris indistinctis vel invisibilibus. Inflorescentiae umbellae simplices pedunculatae 4-florae, in nodis vetustioribus et tota longitudine internodiorum vetustiorum e lenticellis procrescentes; pedunculus teres, basi magis vel minus clavatus, apice in disculum dilatatus, 3 ad 5 mm longus, c. 0.4 mm crassus; pedicelli teretes, 1 ad 1.5 mm longi, 0.25 mm crassi; bracteae 2 ad apicem pedunculi minimae vel subnullae, ad basin floris ovatae semiamplexicaules, acutae vel obtusae, c. 0.5 mm longae. Calicis tubus campanulatus, 1.5 ad 2 mm longus, 1.5 mm latus; limbus brevissimus erectus integer, 0.25 ad 0.5 mm longus. Corolla statu alabastri adulti 16 ad 20 (28) mm longa, ima basi vel paulum supra basin rotundata, usque ad constrictionem c. 3 (4.5) mm ab apice paulum inflata 2.5 mm lata, ad constrictionem 1.5 mm lata, supra constrictionem prismatica vel conica, obtusa, postea dehiscens in petala 4 saepe bina cohaerentia. Filamenti pars libera 1 (2) mm longa. Anthera 2 ad 2.5 (3.5) mm longa, obtusa, loculis 4 continuis. Stylus rectus et fere tota longitudine aequicrassus, 18 ad 20 (31) mm longus, sub stigmate tantum paulum attenuatus; stigma stylo vix crassius, obtusum. Fructus obovato-ellipsoides, maximus 6 mm longus, 4 mm crassus.

The dimensions added between brackets are those of the specimen *Velasco 24118*, peculiar by extraordinarily long flowers.

Philippine Islands, without exact locality, *Cuming 1966* (M, NY, L, Be), cotypes of *Loranthus mirabilis* Van Huerck and Muell. Arg., and of *Stemmatophyllum Cumingii* Van Tiegh. LUZON, Cagayan Province, Ballesteros, 70 m altitude, *F. B. 24118 Velasco* (M), flower red; Malaguey, *Warburg 11705* (Be): Bataan Province, Mount Mariveles, *Copeland s. n.* (M): Rizal Province, Santa Ines, 100 m altitude, *Bur. Sci. 26212 Ramos*

(M, NY), flower yellow and green; Montalban, *Loher 6724* (Be): Laguna Province, San Antonio, Dahican, *Bur. Sci. 15108 Ramos* (M, L), flower yellow.

Further distribution: Java.

16. AMYEMA AQUILONIA Danser sp. nov. Plate 2, figs. 2 to 5.

Omnis glabra. Ramuli ramosissimi, plerumque dichotomi, passim tri- vel tetrachotomi, internodiis teretibus ad nodos incrassatis, folia adulta ferentibus 2 ad 8 cm longis, 1.5 ad 2.5 mm crassis, nodis ad duplo crassioribus. Folia verticillata quaternata; petiolus supra basin paulum incrassatam teres, laminam versus supra applanatus 3 ad 5 mm longus, 0.75 ad 1.5 mm crassus; lamina elliptica vel oblonga, raro leviter obovata, 3.5 ad 6 cm longa, 1 ad 2.5 cm lata, basi acuta, apicem obtusiusculum versus acuta vel leviter acuminata, crasse coriacea, facie superiore semilucida inferiore opaca, costa supra vix visibili, subtus basin versus prominente, nervis ceteris vix visibilibus. Inflorescentiae umbellae simplices 4-florae, e nodis vetustioribus et e lenticellis internodiorum vetustiorum procrescentes; pedunculus teres, basi paulum clavatus, apice paulum disciformis, c. 2 mm longus, 0.4 mm crassus; pedicelli teretes, 0.5 ad 1 mm longi; bracteae ad apicem pedunculi vix visibiles, ad bases florum late ovatae, obtusae vel acutae, 0.5 ad 0.75 mm longae. Calicis tubus campanulato-obovatus, 1.5 ad 2 mm longus, 1.5 mm latus, limbus brevissimus, erectus, integer, vix 0.25 mm longus. Corolla statu alabastri adulti 14 ad 15 mm longa, inter basin rotundatam et constrictionem 2 mm ab apice leviter inflata ad 3 mm lata, supra constrictionem breve cylindrica c. 1.75 mm crassa apice rotundata, postea dehiscens in petala 4 linearia 1.75 mm lata usque ad 2 mm ab apice, parte superiore ovata obtusa. Anthera subsessilis, ovata, c. 2 mm longa, obtusa. Stylus c. 15 mm longus, sub stigmate paulum attenuatus; stigma paulo crassius quam styli apex, obtusum. Cetera ignota.

Closely related to *Amyema fasciculata*, differing by smaller, harder, more elliptic leaves, smaller and quite glabrous flowers and inflorescences.

LUZON, Ilocos Norte Province, Bangui, Mount Palimlim, 1,050 m altitude, near summit, *Bur. Sci. 33296 Ramos* (M, type, B, L, B, cotypes), flower blood red and green.

16a. AMYEMA SESSILIFOLIA (Van Tieghem) Danser.

Stemmatophyllum sessilifolium VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 506, 546.

Loranthus sessilifolius ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128.

Amyema sessilifolia DANS., Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 34.

Though the fragments of *Cuming 1956* in the Philippine National Herbarium indeed are an *Amyema* not distinguishable from *A. luzonensis*, I cannot agree with Merrill in placing *Stemmatophyllus sessilifolium* among the synonyms of the latter species. Van Tieghem describes the inflorescence as an "ombelle pauciflore axillaire, brièvement pédicellée," and consequently places his *St. sessilifolium* in one group with *St. Cumingii* (= *Amyema fasciculata*). Perhaps *Cuming 1956* may prove to be a mixture, like some other Cuming numbers, but the plant of which Van Tieghem describes the inflorescences is not *Amyema luzonensis*.

17. AMYEMA NODOSA (Van Tieghem) Danser.

Stemmatophyllum nodosum VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 506, 546.

Loranthus nodosus ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128.

Loranthus merrittii MERR., Philip. Journ. Sci. § C 4 (1909) 134; Fl. Manila (1912) 184; Enum. Philip. Fl. Pl. 2 (1923) 107 excl. specim.

Amyema nodosa DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 297; Verh. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 31.

Omnis glabra. Stolonibus plantae nutrici affixa. Ramuli ramosissime, plerumque dichotomi passim 3- vel 4-chotomi, internodiis teretibus nodis incrassatis, folia adulta ferentibus 1 ad 8 cm longis 1 ad 3.5 mm crassis, nodis ad duplo crassioribus. Folia verticillata plerumque quaternata raro opposita; petiolus basi teres, laminam versus supra applanatus, 3 ad 10 mm longus, 0.75 ad 1.5 mm crassus; lamina obovata vel anguste obovata, 3 ad 7 cm longa, 1 ad 3 cm lata, basi acuta vel in petiolum attenuata, apice rotundata, crasse coriacea et dura, utrinque opaca, costa supra plana indistincta, subtus basin versus prominente, nervis ceteris invisibilibus vel crassioribus indistinctis. Inflorescentiae paucae vel multae in nodis defoliatis, initio in axillis tantum, postea toto circuitu nodorum, in scrobiculis corticis insertae, umbellae simplices sessiles vel subssessiles 1 ad 2 florae raro 3-florae; pedicelli teretes, 0.5 ad 3 mm longi, 0.25 ad 0.75 mm crassi; bracteae rotundato-ovatae semiamplexicaules, plerumque obtusae, 0.5 ad 0.75 mm longae. Calicis tubus obovatus vel piriformis, 1.5

ad 2 mm longus, 1.25 ad 1.75 mm latus; limbus erectus vel infundibuliformis, 0.25 ad 0.5 mm longus, integer vel subinteger. Corolla statu alabastri adulti 8 ad 13 mm longa, supra basin rotundatam usque ad apicem rotundatum cylindrica paulum inflata 2 ad 3 mm lata, postea dehiscens in petala 5 ad 6 linearia. Anthera sessilis, c. 2 mm longa, obtusa, loculis 4 continuis. Stylus 2 ad 14 mm longus, tota longitudine subaequicrassus, dimidia parte superiore paululum crassior; stigma stylo nonnihil crassius, obtussissimum. Fructus obovatus vel paulum piriformis, ad 7 mm longus, 5 mm crassus, calicis limbo permanente coronatus.

The area of distribution of *Amyema nodosa* is remarkably continuous; central Luzon, Lubang, Mindoro, Sibuyan; it occurs "at low altitudes" (Merrill, Enum.). The flower color is indicated on the herbarium labels as red or orange with green tips.

Philippine Islands, without exact locality, *Cuming 1958* (M); *Cuming 1952* (M, Be), cotypes of *Stemmatophyllum nodosum* Van Tieghem. LUZON, Pangasinan Province, Alaminos, 40 m altitude, *F. B. 8348 Curran and Merritt* (M), *Bur. Sci. 41463 McGregor* (M, B, L, S, Be): Bataan Province, near Bagac, *F. B. 5977 Curran* (M): Bulacan Province, Malolos, *Bur. Sci. 19260 Aldaba* (M): Rizal Province, *Loher s. n.* (UC): Manila, *Merrill 3494* (M); Manglas de Maypajo, *Loher 4463* (M, Be): Laguna Province, along Puting Lupa, Mount Makiling, 100 to 200 m altitude, *F. B. 26366 Mabesa* (M): Tayabas Province, Kabibihan, *F. B. 28365 Mabesa* (M). LUBANG, sea level, *Merrill 960* (M, NY, S, Be). MINDORO, Cauayan, beach swamp, *F. B. 9893 Merritt* (M). SIBUYAN, Capiz, Mount Giting-giting, Magallanes, *Elmer 12412* (M, NY, B, L, U).

18. AMYEMA HUTCHINSONII (Merrill) Danser.

Loranthus hutchinsonii MERR., Philip. Journ. Sci. § C 4 (1909) 138; Enum. Philip. Fl. Pl. 2 (1923) 105.

Amyema Hutchinsonii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 296; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 30.

Omnis glabra. Stolonibus planta nutrici affixa. Ramuli teretes nodis incrassatis, plerumque dichotomi, internodiis folia adulta ferentibus 1 ad 8 cm longis, 2.5 ad 6 mm crassis, nodis susquiplo vel duplo crassioribus. Folia plerumque opposita, rarius sparsa vel ad 4 in verticillos approximata; petiolus teres, prope laminam supra applanatus, basin incrassatus, 5 ad 10 mm longus, 1 ad 2 mm crassus; lamina obovata vel rotundato-ellip-

tica, 4 ad 8 cm longa, 3 ad 5.5 cm lata, basi late vel anguste cuneata, vel paulum in petiolum attenuata, apice late rotundata vel obtusissima, utrinque opaca, crasse coriacea, costa facie inferiore basin versus prominente, apicem versus et facie superiore indistincta, nervis ceteris invisibilibus vel crassioribus indistinctis. Inflorescentiae umbellae sessiles floribus 1 vel 2 raro e, in axillis foliorum positae vel toto circuitu nodorum vetustiorum, in scrobiculis corticis insertae; pedicelli teretes, 0.5 ad 3 mm longi, 0.3 ad 0.4 mm crassi; bracteae rotundato-ovatae, semiamplexicaules, obtusae, 1 ad 5 mm longae. Calicis tubus infundibuliformi-obovatus vel magis campanulatus, c. 2.5 mm longus, 1.5 ad 2 mm latus, limbus c. 0.75 mm longus, infundibuliformis integer. Corolla statu alabastri adulti subcylindrica, basi apiceque rotundata, 18 ad 22 mm longa, postea partita in petal 5 linearia c. 1 mm lata in 3 quartas longitudinis paulum dilatata ibi 1.25 ad 1.5 mm lata, parte superiore 3.5 mm longa reflexa subspathulata, apice incurvata obtusa. Filamenti pars libera 0.5 ad 1 mm longa; anthera 2.5 mm longa, obtusa, loculis 4 continuis. Stylus 18 ad 22 mm longus, apicem versus sensim paululum incrassata; stigma style apice sesquiplo crassius, obtusum vel obtusissimum. Fructus rotundato-ellipsoides, ad 8 mm longus, 5 ad 6 mm crassus, calicis limbo permanente coronatus.

MINDANAO, Misamis Province, Mount Malindang, 1,100 m altitude, *F. B. 4554 Mearns and Hutchinson* (M, NY, B, Be, L), flowers red, type of *Loranthus hutchinsonii* Merr. PALAWAN, Silanga, 400 m altitude, *Merrill 9586* (M), flowers yellowish.

19. AMYEMA WENZELII (Merrill) Danser.

Loranthus Wenzelii MERR., Philip. Journ. Sci. § C 8 (1913) 370; Enum. Philip. Fl. Pl. 2 (1923) 111.

Amyema Wenzelii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 299; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 35.

Omnis glabra. Stolonibus plantae nutrici affixa. Ramuli teretes nodis incrassatis, parce ramosi, internodiis folia adulta ferentibus 7 ad 14 cm longis, 3 ad 6 mm crassis nodis ad duplo crassioribus. Folia opposita vel 4 verticillata, magna; petiolus supra basin paulum incrassatam teres, laminam versus supra applanatus vel leviter canaliculatus, 10 ad 20 mm longus, 2.5 ad 5 mm crassus; lamina ovata vel oblonga, 11 ad 27 cm longa, 5 ad 15 cm lata, basi cuneata vel rotundata, apicem obtusissimum versus saepe paulum acuminata, crasse coriacea, utrinque

opaca, costa supra paulum convexa distincta, subtus valde prominente, nervis lateralibus crassioribus utrinque visibilibus, tenuioribus plerumque invisibilibus. Inflorescentiae numerosae in stolonibus et in nodis ramorum vertustiorum, umbellae sessiles floribus 1 vel 2, raro 3, in scrobiculis corticis insertae; pedicelli 0 ad 2 mm longi, teretes, 0.25 ad 0.5 mm crassi; bracteae suborbiculares obtusae ad ovatae acutae, c. 1 mm longae. Calicis tubus infundibuliformi-obovatus, 1.5 ad 2 mm longus, c. 1.25 mm latus; limbus plerumque erectus, integer vel levissime dentatus, c. 0.75 mm longus. Corolla statu alabastri adulti 12 ad 14 mm longa, a basi rotundata usque ad 2 ad 2.5 mm ab apice late cylindrica paulum inflata ad 2 mm lata, parte superiore 2 ad 2.5 mm longa cylindrica 1 mm lata obtusissima, postea partita in petala 5 linearia, versus insertionem filamentorum paulum dilatata, parte superiore angustiora, reflexa, apice incurvata obtusa. Anthera sessilis, c. 2.5 mm longa, obtusa, loculis 4 continuis. Stylus a basi ad apicem paululum incrassatus, 14 ad 16 mm longus; stigma stylo paulo crassius, obtusissimum. Cetera ignota.

LEYTE, Dagami, Panda, 60 m altitude, *Wenzel 24* (M), flower yellow, type of *Loranthus Wenzelii* Merr.; Tacloban, *Wenzel 1739* (M), flower green and yellow. BOHOL, Bilar, 600 m altitude, *Bur. Sci. 43282 Ramos* (M, UC, B, S, Be) and *43339 Ramos* (M, UC), flower yellow, tips green.

Probably also: MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, *Clemens s. n.* (M).

VIII. Genus DICYMANTHES Danser

Dicymanthes DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 311, 365, 366; 11 (1931) 236, 263; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 5, 49.

Inflorescentia capitata, floribus plerumque 6 omnibus sessilibus in triadibus 2 dispositis, raro paucioribus, involucro e bracteis 2 bracteolisque 4 verticillum singulum formantibus composito. Corolla 5- vel 6-meres, choripetala. Antherae basifixae, loculis 4 continuis.

The genus *Dicymanthes* is spread in the Philippines from central Luzon to southern Mindanao and the Sulu Islands, but not from Mindanao and Panay to Palawan. Outside the Philippines it extends only in a southern direction over Celebes and the Moluccas to eastern Java and the Lesser Sunda Islands.

The eight species formerly described I have reduced to six, and to these I have added one new species. Moreover, it must

be remarked, that the species first described, *Dicymanthes cauliflora,* is the only one with an aberrant inflorescence, composed of only three flowers and with an involucre of only three bracts. I suppose it is a reduced form of *D. seriata,* with which it agrees in other characters.

Key to the Philippine species of Dicymanthes.

1. Leaves attenuate at the base and distinctly petioled ..... 2.
   Leaves attenuate at the base to slightly cordate, but not or hardly petioled ..... 4.
2. Petals without scale at the inside above the base; inflorescences on the nodes, not along the internodes; peduncle of the inflorescence 3 to 7 mm long ..... 1. *D. hexantha.*
   Petals with a scale at the inside above the base; inflorescences along the internodes and on the creepers, rarely on the nodes; peduncle of the inflorescence 1 to 2 mm long ..... 3.
3. Heads 6-flowered ..... 2. *D. seriata.*
   Heads 3-flowered ..... 3. *D. cauliflora.*
4. Inflorescences entirely sessile, even somewhat sunken in the bark. 7. *D. cuernosensis.*
   Inflorescences more or less peduncled ..... 5.
5. Anther nearly 1.5 mm long; clavate apical part of the corolla bud not longer than 2.5 mm; peduncle of the inflorescence usually 4 to 6 mm long ..... 4. *D. Edanoii.*
   Anther 2.5 to 4 mm long; clavate part of the corolla bud 4 to 7 mm long; peduncle of the inflorescence usually 1 to 3 mm long ..... 6.
6. Leaves and twigs thick and coarse ..... 5. *D. samarensis.*
   Twigs slender, leaves rather thin ..... 6. *D. suluana.*

1. DICYMANTHES HEXANTHA (Merrill) Danser.

Loranthus hexanthus Merr., Philip. Journ. Sci. § C 4 (1909) 137; Elmer, Leafl. Philip. Bot. 3 (1911) 1073; Merr., Enum. Philip. Fl. Pl. 2 (1923) 105.

Dicymanthes hexantha Dans., Bull. Jard. Bot. Buitenzorg III 10 (1929) 311; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 49.

Omnis glabra. Ramuli ramosissimi, dichotomi vel tri- vel tetrachotomi, nodis incrassatis, internodiis folia adulta ferentibus 3 ad 11 cm longis, 1.5 ad 3 mm crassis, nodis ad duplo crassioribus. Folia opposita vel rarissime verticillata quaternata; petiolus saepe difficile a lamina distinguendus, subtus rotundatus, supra prope basin leviter versus laminam magis applanatus, 5 ad 10 mm longus, 1 ad 1.5 mm latus; lamina plerumque ovata, 6 ad 18 cm longa, 3 ad 9 cm lata, basi cuneata vel magis in petiolum contracta, apicem obtusum versus sensim attenuata vel magis

acuminata, crassiuscula, utrinque opacissima, facie superiore costa nervisque crassioribus indistinctis venis invisibilibus, inferiore costa basin versus valde prominente nervis lateralibus plerumque invisibilibus. Capitula floribus 6 bracteisque 6, singula in axillis foliorum adultorum et gregatim ad nodos vetustiores; pedunculus teres, 3 ad 1 mm longus, 1 ad 1.5 mm crassus; bracteae florum mediorum rotundato-ovatae, c. 2 mm longae, reflexae, bracteolae florum lateralium nonnihil angustiores, adpressae. Calicis tubus campanulatus 2 ad 2.5 mm longus, apice c. 1.5 mm latus; limbus infundibuliformis, 1.5 mm longus, crenatus vel leviter irregulariterque lobatus. Corolla statu alabastri adulti c. 17 mm longa, supra basin rotundatam 2 mm latam ad 0.6 longitudinis sensim ad 1 mm attenuata, parte tertia superiore ellipsoides 1.5 ad 2 mm crassa, acute quinquangula, obtusiuscula, postea partita in petala 5 paulum supra basin c. 0.75 mm lata, medium versus attenuata ad dimidiam latitudinem, parte superiore 6 mm longa anguste lanceolata, crassiuscula, acutiuscula, c. 0.75 mm lata, primum in parte superiore tantum postea magis recurvata (facie interiore supra basin squama nulla). Filamenti pars libera c. 2 mm longa; anthera 2 ad 2.5 mm longa, acutiuscula. Stylus corolla subaequilongus, stigma versus paulum attenuatus; stigma styli parte inferiore aequicrassum subglobosum, obtusissimum. Fructus ellipsoides, ad 6 mm longus, 4 mm crassus, calicis limbo permanente acuto ad 2 mm longo erecto vel subinfundibuliformi coronatus.

MINDANAO, Lanao Province, Lake Lanao, south side, Vicar's landing, *Clemens s. n.* (M), type of *Loranthus hexanthus* Merr.: Bukidnon Province, Tangulan, *Bur. Sci. 39038 Ramos and Edaño* (L, Be): Davao Province, Mount Apo, Todaya, *Williams 2565* (M, NY), flowers red; *Elmer 10462* (M, NY, B, L) and *11813* (NY, B. L); Mount Apo, Sibulan, *Clemens s. n.* (UY), flowers red, *Warburg 14766* (Be).

2. DICYMANTHES SERIATA (Merrill) Danser.

Loranthus seriatus MERR., Philip. Journ. Sci. § C 9 (1914) 285; Enum. Philip. Fl. Pl. 2 (1923) 109.

Dicymanthes seriata DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 311; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 49.

Omnis glabra. Ramuli teretes, nodis incrassatis, pluries dichotomi, internodiis folia adulta ferentibus 6 ad 20 cm longis, 2.5 ad 5 mm crassis, nodis ad duplo crassioribus. Folia opposita;

petiolus semper distinctus, saepe difficile a lamina distinguendus, 5 ad 8 mm longus, 1.5 ad 2 mm latus, subtus rotundatus, supra prope basin leviter, laminam versus magis applanatus; lamina ovata vel oblongo-ovata, 8 ad 16 cm longa, 4.5 ad 7.5 lata, basi cuneata vel rotundata, supera in petiolum contracta, apicem obtusiusculum versus magis vel minus acuminata, crassiuscula, utrinque opaca, penninervis, nervis lateralibus obliquis vel magis incurvatis, costa nervisque lateralibus crassioribus utrinque distinctis, costa subtus magis prominente. Capitula floribus 6 bracteisque 6, unilateraliter in tota longitudine internodiorum et in toto circuitu nodorum defoliatorum e lenticellis procrescentia; pedunculus subteres, c. 2 mm longus, 1 mm crassus; bracteae patentes suborbiculares bracteolaeque magis ovatae adpressae c. 1.5 mm longae, apice rotundatae. Calicis tubus campanulato-obovatus, c. 2 mm longus, 1.5 mm latus; limbus c. 0.5 mm longus infundibuliformis, subinteger. Corolla statu alabastri adulti c. 20 mm longa, a basi rotundata c. 2.5 mm lata medium versus in dimidiam latitudinem attenuata vel nonnihil inflata, in tertia parte apicali in clavan obtusam quinquangulam c. 2 mm crassam inflata, postea partita in petala 5 recurvata, latere interiore ad 2 ad 3 mm supra basin squamula deflexa c. 0.5 mm longa, parte inferiore c. 0.6 mm lata, deinde sensim attenuata sed parte superiore 6 mm longa spathulata crassiuscula subacutae. Filamenti pars libera 0 ad 1 mm longa; anthera 3 ad 4 mm longa, acutiuscula. Stylus tota longitudine subaequicrassus, prope stigma palum attenuatus; stigma styli parte basali aequicrassum, subglobosus, obtusissimum. Cetera ignota.

MINDANAO, Zamboanga Province, Mount Pulongbato, *Bur. Sci. 16424 Reillo* (M, Be), type of *Loranthus seriatus* Merr.: Bukidnon Province, Mount Tangulan, Poquitnan, *Bur. Sci. 21380 Escritor* (M, NY, B, L).

3. DICYMANTHES CAULIFLORA (Merrill) Danser.

Loranthus cauliflorus MERR., Philip. Journ. Sci. 1 Suppl. (1906) 185; § C 4 (1909) 136; ELM., Leafl. Philip. Bot. 6 (1913) 1960; MERR., Enum. Philip. Fl. Pl. 2 (1923) 103.

Dicymanthes cauliflora DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 311; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 49.

Omnis glabra. Stolonibus plantae nutrici affixa. Ramuli teretes, nodis incrassatis, internodiis folia adulta ferentibus 4 ad 22 cm longis, 3 ad 5 mm crassis, nodis ad duplo crassioribus.

Folia opposita; petiolus semper distinctus saepe difficile a lamina distinguendus, ad 25 mm longus, ad 5 mm latus, subtus rotundatus, supra prope basin leviter, laminam versus magis applanatus; lamina oblongo-ovata vel lanceolato-ovata, ad 21 cm longa, 8 cm lata, basi cuneata vel in petiolum contracta, apicem obtusiusculum versus sensim attenuata vel leviter acuminata, crassiuscula, utrinque opacissima, penninervis, nervis lateralibus valde incurvatis, facie superiore costa et nervis crassioribus leviter convexis sed distinctis, venis invisibilibus, facie inferiore costa basin versus valde prominente apicem versus indistincta, nervis lateralibus crassioribus visibilibus. Capitula floribus 3 bracteisque 3, numerosa, in internodiis et stolonibus e lenticellis praecipue unilateriter procrescentia; pedunculus subteres, 1 ad 2 mm longus subaequicrassus; bracteae rotundato-ovatae obtusissimae, 1 ad 1.5 mm longae. Calicis tubus campanulato-obovatus, 1.5 ad 2 mm longus, 1.25 ad 1.5 mm latus, limbus c. 0.5 mm longus, crenatus vel leviter lobatus. Corolla statu alabastri adulti 15 ad 22 mm longa, supra basin rotundatam 2.5 mm latam sensim attenuata, ad duas tertias longitudinis 0.5 ad 0.75 mm lata, deinde in clavam anguste ellipsoidem c. 1 mm crassam dilatata, apicem obtusiusculum vel obtusum versus sensim attenuata, tota longitudine angulata, postea devisa in petala 5 raro 6 supra basin dilatata, deinde sensim attenuata usque ad duas tertias longitudinis, parte tertia superiore lanceolata acutiuscula vel obtusa, facie interiore 2 ad 3 mm supra basin squamula obtusa 1 ad 2 mm longa deflexa. Anthera sessilis vel subsessilis, linearis, obtusa, 4 ad 6 mm longa. Stylus corolla subaequilongus vel paulo longior, parte tertia superiore paulo tenuior quam parte inferiore; stigma parte styli inferiore aequicrassum, obtusissimum. Fructus maturus ignotus.

MINDANAO, Lanao Province, Lake Lanao, west of Camp Keithley, *Clemens 55* (M), type of *Loranthus cauliflorus* Merr., flowers bright red; also *Clemens s. n.* (M).

4. DICYMANTHES EDANOII (Merrill) Danser.

Loranthus Edanoii MERR., Philip. Journ. Sci. § C 13 (1918) 275; Enum. Philip. Fl. Pl. 2 (1923) 104.

Dicymanthes Edanoii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 311; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 49.

Glabra, inflorescentiis juvenilibus breve puberulis exceptis. Ramuli dichotomi, internodiis teretibus nodis incrassatis, folia

adulta ferentibus 8 ad 11 cm longis, 1.5 ad 4 mm crassis, nodis sesquiplo vel duplo crassioribus. Folia opposita sessilia vel subsessilia; lamina ovato-oblonga, 10 ad 17 cm longa, 4 ad 6 cm lata, basi plerumque rotundata rarius cuneata vel leviter cordata, apicem obtusiusculum vel obtusum versus acuta vel acuminata, crassiuscula, utrinque opaca, penninervis, costa nervisque lateralibus crassioribus utrinque leviter prominentibus, distinctis, costa basin versus facie inferiore valde prominente. Capitula floribus 6 bracteisque 6, singula in axillis foliorum vel plura ex nodis vetustioribus, vel etiam secus internodia e tuberculis (lenticellis?) procrescentia; pedunculus leprosulus, teres vel paulum applanatus, 4 ad 6 mm longus, basi c. 1.5 mm crassus, sub apice paulum incrassatus c. 1 mm crassus; bracteae paulum reflexae bracteolaeque erectae 1 ad 1.25 mm longae, orbiculares, vel bracteolae paulum ovatae. Calicis tubus campanulato-infudibuliformis, 2 ad 2.5 mm longus, 1.5 mm latus, leprosulus ut pedunculus limbus plerumque erectus, integer vel subinteger, c. 0.5 ad 1 mm longus. Corolla statu alabastri adulti c. 11 ad 13 (raro ad 17) mm longa, a basi c. 1.5 mm lata sensim attenuata, sub clavam terminalem c. 0.75 mm lata, clava terminali globosa vel obovata, acute angulata, c. 1.5 ad 2 mm crassa, 2 ad 2.5 mm longa, postea partita in petala 5 recurvata, a basi usque ad 2.5 mm ad apice sensim attenuata, parte apicali spathulata crassiuscula, facie interiore c. 1.5 mm supra basin squamula deflexa c. 0.75 mm longa. Filamenti pars libera 0.5 (raro ad 1.5) mm longa; anthera 1 ad 1.5 (raro ad 2) mm longa. Stylus corolla aequilonga, sub apice paulum attenuata; stigma paulo crassius, obtusissimum. Fructus ellipsoides vel obovoides, ad 8 mm longus, 5 mm crassus, limbo calicis 1 mm longo integro coronatus; semen obovatum, c. 3.5 mm longum, 2 mm crassum.

Dicymanthes Edanoii has a peculiar and remarkably continuous distribution, from central Luzon to Leyte, but in neither northern Luzon nor the southern and southwestern Philippines. It has been collected from sea level to an altitude of 600 m. The flowers are red.

LUZON, Nueva Ecija Province, Mount Umingan, 40 m altitude, *Bur. Sci. 26241 Ramos and Edaño* (M, type, NY, cotype of *Loranthus Edanoii* Merr.) : Rizal Province, San Andales, Mayali River, low altitude, *Bur. Sci. 48743 Edaño* (M, NY, UC, B) : Laguna Province, Sitio Tubog, Paete, 400 m altitude, *F. B. 29743 Sulit* (M, NY, UC) ; Cavinti, 300 m altitude, *F. B. 9569 Curran*

(M); San Antonio, Pamasak, *Bur. Sci. 10965 Ramos* (M); Dahican River, *Ramos 1136* (N, U, Br): Tayabas Province, Infanta, near Agos River, 5 m altitude, *Bur. Sci. 9337 C. B. Robinson* (M); Mount Binuang, San Mateo River, 35 mm altitude, *Bur. Sci. 28800 Ramos and Edaño* (M); Umiray, *Bur. Sci. 28998 Ramos and Edaño* (M, UC): Camarines Sur Province, Mount Cauayan, *Bur. Sci. 22179 Ramos* (M): Albay Province, Mount Mayon, 600 m altitude, *Bur. Sci. 6482 C. B. Robinson* (M). CATANDUANES, San Jose, low altitude, *Bur. Sci 75404 Ramos and Edaño* (M, NY, UC, B, S). SAMAR, Loquilocon, 250 m altitude, *Bur. Sci. 43698 McGregor* (M, NY, UC, B). BILIRAN, *Bur. Sci. 18918 McGregor* (M). LEYTE, Bango, *F. B. 11571 Whitford* (M); Jaro, Boista, 500 m altitude, *Wenzel 560* (M); Mount Abucayan, low altitude, *Bur. Sci. 41657 Edaño* (M, S, B, L, Be).

5. DICYMANTHES SAMARENSIS (Merrill) Danser.

Loranthus samarensis MERR., Philip. Journ. Sci. § C 13 (1918) 276; Enum. Philip. Fl. Pl. 2 (1923) 109 excl. specim.

Dicymanthes samarensis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 311; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 49.

Omnis glabra. Ramuli robusti dichotomi, nodis incrassatis, internodiis folia adulta ferentibus 11 ad 13 cm longis, 4 ad 7 mm crassis. Folia opposita sessilia; lamina ovata, 14 ad 17 cm longa, 6 ad 11 cm lata, basi rotundata vel leviter cordata, apicem obtusiusculum versus paulum acuminata, crassa, utraque facie opaca etiam granulis minimis scabra, costa basin versus valde prominente, nervis lateralibus crassioribus minus prominentibus sed distinctis, venis crassioribus visibilibus. Capitula floribus 6 bracteisque 6, secus internodia defoliata e tuberculis (lenticellis?) procrescentia; pedunculus 2 ad 3 mm longus, basi c. 2 mm apice c. 1.5 mm crassus; bracteae reflexa, bracteolae adpressae, omnes suborbiculares c. 1 mm longae. Calicis tubus campanulatus, 2.5 ad 3 mm longus, apice 1.5 ad 2.5 mm latus; limbus 0.5 ad 0.75 mm longus, infundibuliformis, subinteger. Corolla statu alabastri adulti 17 ad 19 mm longa, supra basin ad 3 mm inflata, dein sensim attenuata, in 4 mm superioribus in clavam ellipsoidem obtusissimam 5-angulam incrassata, postea partita in petala recurvata e basi c. 1.25 mm lata ad 0.75 mm angustata, parte apicali lanceolata c. 1 mm lata acutiuscula crassiuscula, facie interiore c. 2 mm supra basin squamula deflexa obtusa c. 1 mm longa. Filamenti pars libera c. 1.5 mm longa;

anthera 2.5 ad 3 mm longa, oblonga, subacuta. Fructus ellipsoides, immaturus tantum notus, calicis limbo integro erecto coronatus.

The only material I can refer to this species is the type in the Philippine National Herbarium. The other specimens, mentioned by Merrill in his Enumeration, are *D. cuernosensis*. Most closely related is *D. suluana*, but as the appearance of this is very different, and the materials of *D. samarensis* are insufficient to get a clear idea of this species, I could not unite these two.

SAMAR, Catubig River, 12 m altitude, *Bur. Sci. 24265 Ramos* **(M)**, flower red.

6. DICYMANTHES SULUANA Danser sp. nov. Plate 2, figs. 6 to 10.

Glabra, inflorescentiis calicibusque valde juvenilibus brevissime puberulis mox glabrescentibus exceptis. Ramuli subrobusti, graciles, pluries dichotomi, passim tri- vel tetrachotomi, teretes, nodis incrassatis, internodiis 5 ad 15 cm longis, folia adulta ferentibus 1.5 ad 3.5 cm crassis, nodis primum paulum dilatatis, postea ad duplo crassioribus. Folia opposita sessilia vel brevissime petiolata; petiolus, si adest, difficile a lamina distinguendus, maxime 7 mm, plerumque 0 ad 2 longus, supra leviter convexus, subtus rotundatus; lamina ovata rarius ovato-oblonga, 6 ad 22 cm longa, 3 ad 10 cm lata, basi in petiolum contracta rarius cuneata, apicem obtusiusculum versus magis vel minus acuminata, praecipue in foliis majoribus, crassiuscula, fragilis, utraque facie opaca, penninervis nervis lateralibus incurvatis, facie superiore costa, nervis lateralibus et venis crassioribus, leviter prominentibus distinctis, inferiore costa prominente nervis lateralibus visibilibus. Capitula floribus 6 bracteisque 6, singula in axillis foliorum juniorum, vel plura in axillis foliorum vetustiorum vel etiam e lenticellis internodiorum defoliatorum; pedunculus teres, c. 1.5 mm longus et crassus; bracteae palum reflexae et bracteolae adpresae suborbiculares c. 1.75 mm longae. Calicis tubus campanulatus, 0.2 mm longus, apice 1.25 ad 1.5 mm latus, limbus erectus vel infundibuliformis, c. 0.75 mm longus, integer vel subinteger. Corolla statu alabastri adulti 18 ad 24 mm longa, a basi rotundata c. 2.5 mm lata in dimidia parte inferiore sensim ad c. 1.75 ad 1 mm attenuata, usque ad 7 mm ab apice aequilata 5-angula, supra in clavam 5-angulam obtusam 1.75 ad 2 mm crassam inflata, postea dehiscens in petala 5 recurvata, in parte inferiore c. 1 mm lata deinde

attenuata, parte tertia media vix 0.5 mm lata parte superiore 6 ad 7 mm longa lanceolata, apice crassiuscula obtusiuscula c. 0.75 mm lata, facie interiore 2 ad 3 mm supra basin squamula obtusa deflexa c. 1 mm longa. Filamenti pars libera 0 ad 1 mm longa; anthera 3 ad 4 mm longa, obtusa vel obtusiuscula. Fructus ellipsoides, calicis limbo permanente infundibuliformi coronatus.

Dicymanthes suluana is closely related to *D. samarensis*, but whereas the appearance of the various specimens of *D. suluana* is very similar, they are strikingly different from the type of *D. samarensis*. The latter species, however, is still insufficiently known. There are notable differences, especially in the leaves; in *D. suluana* these are smaller, thinner, more grayish, and of finer texture, usually attenuate at the base or even petioled. These differences are in general too small to distinguish species, but if I had not accepted them provisionally as such, I would have been obliged to unite also *D. suluana* and *D. samarensis* with *D. Edanoii*.

Among the Dutch East Indian species, *D. longipes* is nearly related.

LUZON, Sorsogon Province, Mount Bulusan, Irosin, *Elmer 15292* and *14984* (M, UC, B, L, U). JOLO (= Sulu), *Warburg 14842* (Be); Mutu and Gandasuri, from sea level to 20 m altitude, *Link 25* (M), flower deep red; Mount Daho, 600 m altitude, *Bur. Sci. 43894 Ramos and Edaño* (M, type, UC, NY, B, cotypes), flower red.

7. **DICYMANTHES CUERNOSENSIS (Elmer) Danser.**

Loranthus cuernosensis ELMER, Leafl. Philip. Bot. 2 (1908) 469; MERR., Philip. Journ. Sci. § C 4 (1909) 138; Enum. Philip. Fl. Pl. 2 (1923) 103 excl. specim.

Loranthus apoensis ELMER, Leafl. Philip. Bot. 3 (1911) 1073; MERR., Enum. Philip. Fl. Pl. 2 (1923) 102.

Loranthus falcatifolius MERR., Philip. Journ. Sci. § C 9 (1914) 286; Enum. Philip. Fl. Pl. 2 (1923) 104.

Dicymanthes cuernosensis, apoensis, falcatifolia DANSER, Bull. Jard. Bot. Buitenzorg III 10 (1929) 311.

Omnis glabra. Stolonibus plantae nutrici affixa. Ramuli teretes, nodis incrassatis, internodiis folia adulta ferentibus 1 ad 1.4 cm longis, 2 ad 5 mm crassis, junioribus apicem versus applanatis et dilatatis, vetustioribus ad nodos magis incrassatis, duplo vel triplo crassioribus quam media parte. Folia opposita sessilia; lamina ovata ad ovato-lanceolata vel rarius magis elliptica vel oblonga, 6 ad 20 cm longa, 3 ad 7.5 cm lata, basi cuneata

vel rotundata vel leviter cordata, apicem obtusiusculum versus acuta vel magis acuminata, crassiuscula, utrinque opaca, penninervis, nervis lateralibus obliquis numerosis, facie superiore costa visibili basin versus paulum prominente, nervis lateralibus crassioribus etiam paulum prominentibus visibilibus, facie inferiore costa basin versus valde prominente, apicem versus indistincta, nervis ceteris plerumque indistinctis. Capitula sessilia vel etiam in corticem immersa, floribus 4 ad 6, bracteis 6 (vel paucioribus 7), pauca in nodis junioribus in axillis et prope eas, numerosiora in toto circuitu nodorum defoliatorum, etiam gregatim in stolonibus ex scrobiculis corticis procrescentia; bracteae suborbiculares vel ovatae, obtusissimae, c. 2 mm longae. Calicis tubus subcylindricus, 1.5 ad 2.5 mm longus, 1 mm latus; limbus erectus vel cupulatus, c. 1.5 mm longus, leviter dentatus vel subinteger. Corolla statu alabastri adulti 20 ad 23 mm longa, gracilis, supra basin ad 2 mm inflata deinde sensim attenuata, tertia parte media tenuis, apicem versus in clavam ellipsoidem 1.25 ad 1.5 mm crassam 5-angulam acutam incrassata, postea dehiscens in petala 5 parte inferiore 1 mm lata deinde sensim attenuata, tertia parte media angustissima, parte superiore 6 ad 7 mm longa reflexa lanceolata c. 0.5 mm lata, acutiuscula, facie interiore c. 1.5 ad 2 mm supra basin squamula c. 0.5 mm longa obtusa deflexa. Filamenti pars libera plerumque 3 ad 4 mm longa, anthera linearis, 2.5 ad 4 mm longa. Stylus corolla subaequilongus, parte superiore attenuatus; stigma styli parte inferiore subaequicrassum, subglobosum, obtusissimum. Fructus nondum adultus ellipsoides, calicis limbo permanente erecto coronatus, maximus 6 mm longus, 4 mm crassus.

Though all species of *Dicymanthes* are very similar, the forms described as *Loranthus cuernosensis, L. apoensis,* and *L. falcatifolius* could not be kept apart as different species. The species we get in this way is spread over Negros and Mindanao and has been collected at different altitudes, between 900 and 1,800 m above sea level. The corolla is indicated as red, yellowish red, or brownish red, with a yellow or orange tip.

NEGROS, Canlaon Volcano, 1,350 m altitude, *Merrill 6996* (M); Cuernos Mountains, Dumaguete, *Elmer 9525* (M, NY, B, L, U, cotypes of *Loranthus cuernosensis*). MINDANAO, Bukidnon Province, Sumilao, *Bur. Sci. 15764* (M); *Bur. Sci. 15746 Fénix* (M), type of *Loranthus falcatifolius* Merr.; Tangculan and vicinity, Agusan River, 900 m, *Bur. Sci. 39159 Ramos and Edaño* (M);

Cumaycay River, 900 m altitude, *Bur. Sci. 39188 Ramos and Edaño* (M, B, L, Be): Davao Province, Mount Apo, Todaya, *Elmer 11454* (M, NY, B, L, U, cotypes of *Loranthus apoensis* Elmer); Mount Dagat-Bau (?), 1,200 to 1,800 m altitude, *Warburg 14768* (Be).

IX. Genus HELIXANTHERA Loureiro

Helixanthera LOUR., Fl. Conchinchin. 1 (1790) 142; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 316, 357, 358, 366; 11 (1931) 236, 368; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 5, 55.

Helicia PERS., Synopsis 1 (1805) 214.

Helicanthera SPRENG., Syst. 1 (1825) 755.

Phoenicanthemum BLUME, in Schult., Syst. 7 2 (1830) 1729; MIQ., Fl. Ind. Bat. 1 1 (1856) 823; Suppl. Sum. (1860) 138, 345; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 498, 502, 510, 544, 550; 42 (1895) 488.

Strepsimella RAFIN., Sylva Tell. (1838) 159.

Lanthorus PRESL., Epim. Bot. (1849) 256; WALPERS, Ann. 2 (1852) 279; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 483, 487, 510, 543, 550.

Chiridium, Sycophila, Leucobotrys VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 482, 483, 485, 497, 498, 503, 510, 540, 545, 550.

Coleobotrys VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 482, 484, 510, 542, 550; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 305, 367.

Acrostachys VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 498, 504, 510, 543, 550; 42 (1895) 271.

Dithecina VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 489.

Inflorescentia recemosa vel spicata, floribus singula bractea suffultis. Corolla 4- ad 7-petala. Antherae basifixae, loculis 2 vel 4 continuis vel locellatis.

The genus *Helixanthera* is spread all over the Philippines, and is represented there by three species, but it is only rarely met with in Mindanao. Outside the Philippines it is widely spread in the southeastern part of the Asiatic Continent, in the western half of the Malay Archipelago, and in tropical and subtropical Africa.

Key to the Philippine species of Helixanthera.

1. Flowers quite sessile in many-flowered spikes..... 2. *H. sessiliflora.*
   Flowers more or less pedicelled..... 2.
2. Flower in many-flowered racemes; free part of the filament distinct; anther not more than three times as long as broad; style constricted somewhat below the middle..... 1. *H. parasitica.*
   Flowers in at most 6-flowered racemes; anthers sessile, linear; style not constricted ..... 3. *H. tenuis.*

1. **HELIXANTHERA PARASITICA** Loureiro.

Helixanthera parasitica LOUR., Fl. Conchinchin. 1 (1790) 142; SPRENG., Syst. (1825) 755; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 318; 11 (1931) 381; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 58.

Helicia parasitica PERS., Synopsis 1 (1805) 214.

Loranthus pentapetalus ROXB., Fl. Ind. ed. 1 2 (1824) 211; FER.-VILL., Nov. App. (1880) 183; VIDAL, Pl. Cuming. Philip. (1885) 78, 140; Rev. Pl. Vasc. Filip. (1886) 231; MERR., Philip. Journ. Sci. 1 Suppl. (1906) 50; § C 4 (1909) 133; MERR. and MERRITT, Philip. Journ. Sci § C 5 (1910) 345; MERR., Journ. Str. Br. Roy. As. Soc. Special No. 1921 (1921) 239; Enum. Philip. Fl. Pl. 2 (1923) 108.

Loranthus erythrostachys SCHULT., Syst. 7 1 (1829) 103.

Loranthus polycarpus SCHULT., Syst. 7 2 (1830) 1651.

Dendrophthoe pentapetala G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 419.

Lanthorus spicifer PRESL, Epim. Bot. (1849) 257; WALP., Annal. 2 (1852) 729; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 487.

Phoenicanthemum pentapetalum MIQ., Fl. Ind. Bat. 1 1 (1856) 823.

Loranthus spicifer FER.-VILL., Nov. App. (1880) 183; VIDAL, Pl. Cuming. Philip. (1885) 67, 140; Rev. Pl. Vasc. Filip. (1886) 231; MERR., Philip. Journ. Sci. § C 3 (1908) 405.

Lanthorus pentapetalus, pentasepalus, polycarpus, Blumeanus, Cumingii, VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 488.

Leucobotrys inflata and *adpressa* VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 503, 504.

Loranthus inflatus, adpressus, Blumeanus, Cumingii ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 128.

For a more extensive list of literature see Bull. Jard. Bot. Buitenzorg III 11 (1931) 381.

Omnis gabra, exceptis inflorescentiis floribusque juventute densissime brevissimeque puberulis. Ramuli ramosissimi, internodii junioribus basi teretibus apicem versus valde applanatis ancipitibus, vetustioribus semper magis cylindricis nodis valde incrassatis, folia adulta ferentibus plerumque 1.5 ad 7 cm longis, basi 1.5 ad 3 mm crassis, apicem versus ad duplo latioribus. Folia opposita vel subopposita; petiolus supra basin paulum incrassatam teres supra leviter applanatus, laminam versus supra magis applanatus vel leviter canaliculatus, 10 ad 20 mm longus 1 ad 1.5 mm crassus; lamina ovata ad ovato-lanceolata, 3 ad 12 cm longa, 1 ad 5.5 cm lata, basi rotundata vel cuneata, apicem obtusiusculum versus magis vel minus acuminata, tenuiter coriacea, fractione haud fibrosa, utraque facie opaca vel sublucida, penninervis, facie superiore nervis omnibus paulum prominentibus distinctis, inferiore costa valde prominente nervis lateralibus crassioribus plerumque distinctis. Inflorescentiae race-

mosae, gregatim in nodis defoliatis; axis 3 ad 10 mm longus, in 5 ad 10 mm inferioribus nudus teres sulcatus 0.75 ad 1.25 mm crassus, apicem versus paululum attenuatus, magis sulcatus, insertioribus florum paulum incrassatis; pedicelli sparsa sed magis minusve ad 4 ad 5 in verticillos aggregati, numerosi, 0.5 ad 1.5 mm longi, post anthesin ad 2 mm longi, 0.5 ad 0.75 mm crassi, basi et apice paulo crassiores quam medio, obtuse 3- vel 4-anguli, juventute paulum adpressi, post divergentes vel paulum reflexi post anthesin saepe valde reflexi; bractea in prolongatione pedicelli, cupuliformis, dorso gibbera, apice breve acuminata, c. 1 mm longa, saepe fimbriata. Flos juventute axi adpressus, postea divergens; calicis tubus globoso-campanulatus, 1.25 ad 1.5 mm latus; limbus erectus vel margine paulum patens fimbriatus, integer, c. 0.5 mm longus. Corolla statu alabastri adulti c. 4 ad 5.5 mm longa, composita ex 2 partibus globosis parte cylindrica connexis, parte inferiore obtuse 5-angula lateribus cavis, c. 1.5 ad 2 mm longa et lata, parte superiore paulum obovata obtusissima c. 1.25 ad 2 mm longa subaequilata; postea dehiscens in petala 5 parte inferiore facie exteriore late elliptica cava, facie interiore carinata carina anguste sulcata (in qua carina styli quadrat), apice carinae gibberositate rugosa (quae in constrictione styli quadrat); parte media facie exteriore plana, facie interiore filamento adnato distincto; parte superiore reflexa oblonga, acutiuscula, facie exteriore convexa interiore excavatione (in qua anthera quadrat). Filamenti pars libera c. 1 mm longa; anthera elliptica apice basique obtusissima, mox valde abbreviata extrorsim curvata, loculis 4 continuis. Stylus 3 ad 4.5 mm longus, 0.4 partibus inferioribus sulcis 5 carinisque 5 parte superiore crenatis, supra eam partem constrictus, supra constrictionem incrassatus carinis 5 crenatis, apicem versus ecarinatus levis; stigma parte styli superiore fere duplo crassius, truncatum. Fructus ellipsoides vel obovoides, ad 8 mm longus, 5 mm crassus, apice basique rotundatus, calicis limbo vix aucto coronatus; exocarpium induratum fragile; endospermium oblongum vel oblongo-obovatum, c. 4 mm longum, 2 mm crassum.

In Bull. Jard. Bot. Buitenz. III 11: 382, second line of the description, I wrongly wrote, "all parts bearded on the fracture." This should be transferred to the description of *H. valida* on page 390.

The above description is made exclusively from Philippine material. There are certainly small differences between the Philippine plants and those from the Malay Peninsula, Sumatra,

and Java, but these differences are too slight to base a separate species upon. There is no transition form towards the Bornean *H. xestophylla*, and the Philippine specimens with the largest flowers are not those from Negros and Mindanao, but those from Camarines Sur (*Bur. Sci. 76073*, with the style up to 4.5 mm long), and the proportions of their flowers are as in *H. parasitica*, not as in *H. xestophylla*.

The distribution of *H. parasitica* in the Philippines is peculiar; it chiefly occurs in Luzon; it is much rarer in the southern islands Negros, Panay, and Mindanao, and has not been found in the western islands and Palawan. It is collected from low altitudes to 1,800 m elevation.

The flower color of *H. parasitica* is indicated on the herbarium labels usually as red, but not rarely as white, greenish white, yellowish white, or even golden yellow. The fruit is indicated several times as red.

Philippines, without exact locality, *Cuming 1949* (M, NY, L), cotypes of *Lanthorus spicifer* Presl, *Cuming 1975* (M), cotype of *Lanthorus Cumingii* Van Tiegh. LUZON, Ilocos Norte Province, Magalis, Batac, on the mountain, 850 m altitude, *F. B. 22983 Adduru* (M) : La Union Province, Bauang, *Fénix 118* (M) : Mountain Province, Bontoc, 900 to 1,200 m altitude, *F. B. 16524 Curran and Merritt* (M) ; Mount Pukis, 1,800 m altitude, *Bur. Sci. 37830 Ramos and Edaño* (M, NY) ; Bauco, 1,400 m altitude, *Vanoverbergh 1370* (M, L) : Benguet Subprovince, Baguio, *Elmer 8493* (M, NY, B, L) and *8718* (NY, B, L) ; *F. B. 4901 Curran* (M), *Sandkuhl 187* (M), *Clemens s. n.* (UC) ; Mountain Trail, Km 8–10, *Bur. Sci. 78081 Quisumbing* (M) ; Kapungun to Sagpat, *Clemens 17146* (M, UC, NY) ; Kias Hill, *Williams 932* (M, NY) ; Sablang, *Fénix 470* (M, L, U, Br) ; Ambuklao to Daklan, *Merrill 4402* (M, NY) ; Mount Pulog, 1,150 m altitude, *F. B. 16231 Curran, Merritt, and Zschokke* (M, L, B) ; Mount Santo Tomas, 1,500 m altitude, *F. B. 14406* Darling (M, NY) : Cagayan Province, Peñablanca, low altitude, *Bur. Sci. 76735 Ramos* (M) ; Anggapang River, Gonzaga, 300 m altitude, *Bur. Sci. 78243 Edaño* (M) : Zambales Province, Mount Canaynayan, Castillejos, 55 mm altitude, *Bur. Sci. 26820 Edaño* (M, NY, B) ; Mount Tapolao, 600 m altitude, *Bur. Sci. 44712 Ramos and Edaño* (M, UC, NY, S) : Bataan Province, Limay, *F. B. 19133 Curran* (M, B, L) ; Mariveles, *Warburg 33634* (Be) ; Lamao River, 100 m altitude, *F. B. 80 Barnes* (M, NY, B, S) ; Lamao River, Mount Mariveles, *Whitford 1219* (M), 45 altitude, *F. B. 2243*

Meyer (M, NY, B); Mount Mariveles, near summit, *Elmer 6891* (M, NY): Pampanga Province, Mount Abu, 500 m altitude, *Bur. Sci. 1993 Foxworthy* (M): Rizal Province, *Loher 14482* (M, B); Bosoboso, *Merrill 1832* (M, NY), *F. B. 2134 Ahern's coll.* (M, NY, B, S); Mount San Isidro, *Bur. Sci. 1499 Ramos* (M, NY, B); Montalban, *Loher 12788* (M); Pinauisan, *Loher 12422* (M, UC): Laguna Province, San Antonio, *Bur. Sci. 16531* (M, B, L) and *16532* (Br, G, wrong No. 7) *Ramos;* Lilio, *De Leon 4075* (M); Paete, 100 to 200 m altitude, *Bur. Sci. 22823 McGregor* (M): Tayabas Province, Lucban, *Elmer 9174* (M, NY, B, L, U); Piis, 500 m altitude, *F. B. 27368 Sulit* (M, UC); Mount Binuang, 34 m altitude, *Bur. Sci. 28545 Ramos and Edaño* (M, B): Camarines Norte Province, Paracale, low altitude, *Bur. Sci. 33521 Ramos and Edaño* (M): Camarines Sur Province, Ingas, 12 m altitude, *F. B. 28719 Simeon* (M, B); Kolago River, 450 to 480 m altitude, *Bur. Sci. 76073* (M) and *76075* (NY) *Edaño:* Sorsogon Province, Mount Bulusan, Irosin, *Elmer 17224* (M, UC, B, L, U). CATANDUANES, Mount Mariguidon, 400 m altitude, *Bur. Sci. 30199 Ramos* (M). POLILLO, *Bur. Sci. 10333* (M, B, L), and *10350 McGregor* (M, NY). PANAY, Iloilo Province, Ulian River, 320 m altitude, *Bur. Sci. 18176 C. B. Robinson* (M). NEGROS, Oriental Negros Province, Cuernos Mountains, Dumaguete, *Elmer 10390* (NY, B, L). MINDANAO, Misamis Province, Mount Catmon, 100 m altitude, *F. B. 17967 Miranda* (M).

Further distribution: Assam, Conchin China, Malay Peninsula, Sumatra, and Java.

2. HELIXANTHERA SESSILIFLORA (Merrill) Danser.

Loranthus sessiliflorus MERR., Philip. Journ. Sci. 1 Suppl. (1906) 188; § C 4 (1909) 133; Enum. Philip. Fl. Pl. 2 (1923) 110.

Helixanthera sessiliflora DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 318; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 59.

Omnis glabra. Ramuli valde ramosi, internodiis 1.5 ad 6 cm longis, folia adulta ferentibus basi teretibus 2 ad 3.5 mm crassis, juvenilibus apicem versus applanatis et dilatatis ad duplo latioribus, vetustioribus teretibus nodis incrassatis. Folia opposita, breve petiolata vel subsessilia; petiolus difficile a lamina distinguendus, subtus rotundatus supra applanatus, 0 ad 10 mm longus, 2 ad 2.5 mm latus; lamina rotundato-elliptica basi attenuata vel magis obovata, 4 ad 12 cm longa, 2 ad 6 cm lata, basi sensim attenuata, apice rotundata vel apicem obtusum versus breve acuminata, crassiuscula, fragilis, utrinque opaca vel sublucida, frac-

tione haud fibrosa, costa facie inferiore magis prominente quam superiore, nervis ceteris utraque facie invisibilibus vel crassioribus supra visibilibus. Inflorescentiae spicatae, rarius singulae in axillis foliorum, vulgo gregatim in axillis foliorum vetustiorum et in nodis defoliatis; axis irregulariter angulosus et sulcatus, 20 ad 40 mm longus, basi 1 ad 1.5 mm crassus, apicem versus vix attenuatus, insertionibus florum non incrassatis, in 2 ad 10 mm inferioribus nudus, ceterum floribus numerosis densiuscule positis; bracteae suborbiculares, oblique cupuliformes, calicis basi adpressae, c. 0.75 mm longae. Flores semper divergentes, sparsi sed magis vel minus ad 5 inverticilos congregati. Calicis tubus breve campanulatus, c. 1 mm longus et latus; limbus brevissimus, integer, erectus vel paulum infundibuliformis. Corolla statu alabastri adulti 3.5 ad 5 mm longa, dimidia parte inferiore paulum dilatata ad 0.75 mm lata, 4- vel 5-angula lateribus subplanis, medium versus paulum attenuata, dimidia parte superiore iterum 0.75 mm crassa, 4- vel 5-angula, lateribus convexis, obovata, apice rotundata, postea partita in petala 4 vel 5 parte inferiore paulum patentia, medio reflexa, parte apicali incurvata, c. 0.5 mm lata, medio paulum attenuata, apice subacuta, facie interiore parte inferiore vix incrassata, medio gibbera verruculosa, parte superiore cava. Filamenti pars libera 0.5 ad 0.75 mm longa; anthera rotundato-oblonga, c. 1 mm longa, mox contracta et extrorsim curvata, apice rotundata, loculis 4 continuis. Stylus 3 ad 4.5 mm longus, a basi ad apicem paulum incrassatus, haud constrictus, obtuse 4- vel 5-angulus; stigma styli apice paulo crassius, obtusissimum, subtruncatum. Fructus ovoides, maximus 5 mm longus, 3.5 mm latus, apice truncatus et calicis limbo false dentato (vero locis 4 vel 5 inflexis) coronatus, exocarpio coriaceo, mesocarpio viscoso, nulla parte indurata.

Helixanthera sessiliflora has been collected in northern and central Luzon and in Polillo, Mindoro, and Negros, from sea level to 1,600 m altitude. The color of the flowers is indicated on herbarium labels as red or pale red, inserted on a yellow axis.

LUZON, Mountain Province, Bontoc, Mount Masapilig, 900 m altitude, *Bur. Sci. 37901 Ramos and Edaño* (M, B); Benguet Subprovince, Baguio, *Williams 1293* (NY); Tublay, *Elmer 6057* (M, NY, S); Malawey, Pinggat, 1,600 m altitude, *Vanoverbergh 480* (M): Isabela Province, Mount Moises, *Clemens 16709* (UC): Zambales Province, Castillejos, *Comisión de la Flora forestal de Filipinas No. 542* (L): Nueva Vizcaya Province, Caraballo

Mountains, *Loher 13629* (M): Nueva Ecija Province, Mount Umingan, 400 m altitude, *Bur. Sci. 26298 Ramos and Edaño* (M): Bataan Province, Mount Mariveles, Lamao River, 1,000 m altitude, *Whitford 1171* (M), type of *Loranthus sessiliflorus* Merr.: Rizal Province, Montalban, *Loher 12536* (M): Laguna Province, Mount Banahao, 1,376 m altitude, *Bur. Sci. 27933* (M) and *27943* (M, UC), *Ocampo;* 1,500 m altitude, *Bur. Sci. 9795 C. B. Robinson* (M, B, L); first camp, *Quisumbing 1259* (M): Tayabas Province, Sampaloc, *Warburg 13126* (Be); Lucban, *Elmer 7845* (M, NY, B, L); Casiguran, low altitude, *Bur. Sci. 45552 Ramos and Edaño* (M, NY, UC); Mount Binuang, 150 m altitude, *Bur. Sci. 28470 Ramos and Edaño* (M, B); 300 m altitude, *Bur. Sci. 28734 Ramos and Edaño* (M, B). POLILLO, 15 m altitude, *F. B. 29713 Salvoza* (M, UC). MINDORO, Agluban River, 150 m altitude, *F. B. 11499 Merritt* (M); Baco River, *McGregor 125* (M, NY); *Merrill 4041* (M, NY, Be); Alinsanay, *Merrill 1242* (M, NY, Be). NEGROS, Oriental Negros Province, Cuernos Mountains, Dumaguete, *Elmer 10355* (B, NY, L).

3. **HELIXANTHERA TENUIS (Merrill) Danser.**

Loranthus tenuis MERR., Philip. Journ. Sci. S C 4 (1909) 136; Enum. Philip. Fl. Pl. 2 (1923) 110.

Helixanthera tenuis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 318; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 60.

Glabra, partibus valde juvenilibus breve densique ferrugineo tomentosis exceptis. Caules valde tenues ramosissimi, internodiis teretibus insertionibus foliorum nonnihil incrassatis, novissimis subangulatis, folia adulta ferentibus 0.6 ad 1 mm crassis, 3 ad 20 mm longis. Folia sparsa vel passim subopposita; petiolus difficile a lamina distinguendus, 0 ad 2 mm longus, 0.5 ad 0.75 mm crassus, supra paulum infra magis convexus; lamina lanceolata vel ovato-lanceolata, 3 ad 6 mm longa, 0.5 ad 1.8 cm lata, valde in petiolum attenuata, apicem obtusum versus magis minusve acuminata, nonnunquam in acumen lingulatum protracta, chartacea vel tenuiter coriacea, fragilis, utraque facie opaca, facie superiore costa prominente nervis crassioribus partim distinctis, inferiore costa magis prominente nervis lateralibus minus distinctis. Inflorescentiae racemi simplices pauciflori pedunculati in axillis foliorum; pedunculus 9 ad 11 mm longus, 0.2 ad 0.3 mm crassus; axis florifer 0 ad 6 mm longus, 2 ad 5 flores sparsos vel in paribus decussatis dispositos (si 3 subumbellatos) ferens;

pedicelli 1 ad 1.5 mm longi; bractea ovata obtusissima, c. 0.75 mm longa, subuncinata, valde convexa. Calicis tubus rotundato-campanulatus, c. 1 ad 1.25 mm longus et latus, sub limbo paulum constrictus; limbus infundibuliformis, c. 0.25 mm longus, integer. Corolla statu alabastri adulti 5.5 ad 6 mm longa, in 1.5 ad 2 mm inferioribus paulum dilatata c. 1 mm lata quadrangula, ceterum cylindrica c. 0.75 mm lata, apice rotundata, postea partita in petala 4 parte inferiore dilatata intus plana, supra partem dilatatam marginibus membranaceis inflexis, parte superiore intus concava; anthera sessilia, linearia, 2.5 mm longa, obtusa, loculis (probabiliter) 2 continuis. Stylus a basi coniforme 0.5 mm longa aequicrassus, omnis c. 5.5 mm longus; stigma a stylo valde distinctum, globosum, fere 0.5 mm crassum. Fructus globoso-ovoides, ad 3.5 mm longus, 3 mm crassus, calicis limbo brevi et disco (styli basi) exserto coronatus.

The description is made from the type, with exception of the fruit, which is made from the second specimen. Whereas the type specimen bears flower buds and open flowers, the second specimen bears small flower buds and fruit. As the further differences are unimportant and the localities are not far remote I do not doubt the specific identity of the specimens.

Merrill considered the inflorescences as solitary triads and so could not understand the true relationships of this remarkable species. Most closely related are *Helixanthera ligustrina, H. terrestris,* and *H. subligustrina* from the Asiatic Continent. J. D. Hooker [5] describes both *H. ligustrina* and *H. terrestris* as rather robust terrestrial shrubs, with flowers $\frac{1}{3}$ inch long; *H. tenuis* has flowers 7.5 mm long, and on the herbarium label nothing is said about a terrestrial habit. With *H. ligustrina* it agrees in the ferrugineous pubescence of the inflorescences, with *H. terrestris* in the thinner texture of the leaves. Lecomte [6] describes a closely allied species, *H. subligustrina,* the description of which, in several respect, agrees still more with *H. tenuis,* and Lecomte even describes the inflexed membranous margin of the petals, but the figure he gives is different, showing an anther 2 mm long about 2 mm remote from the inflexed margin, whereas *H. tenuis* has an anther 2.5 mm long reaching with its base to the inflexed margin; moreover, *H. subligustrina* has its flowers in spikes, *H. tenuis* rather long-pedicelled in racemes. Perhaps all these species will prove to be forms of one species.

[5] Fl. Br. Ind. 5: 208. [6] Not. Syst. 3: 71, 174.

LUZON, Bataan Province, Lamao Forest Reserve, *F. B. 6287 Curran* (M, type, NY, Be, cotypes of *Loranthus tenuis* Merr.), flower red: Rizal Province, Morong, *ex Herb. Ateneo Manila No. 217* (M).

X. Genus DENDROPHTHOE Martius

Lonicera GAERTN., Fruct. and Sem. 1 (1788) 132 non Linn. (1753).
Dendrophthoe MART., Flora 1830 1 (1830) 109; p. p.; MART. ex Blume, in Schult. Syst. 7 2 (1830) 1613; p. p.; BLUME, in Schult, Syst. 7 2 (1830) 1720 p. p.; DON, Gen. Hist. Dichl. Pl. 3 (1834) 402, 418 p. p.; MIQ., Fl. Ind. Bat. 1 1 (1856) 810 p. p. Suppl. Sum. (1860) 137, 344 p. p.; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 143; 42 (1895) 85, 87, 242, 251, 270, 271; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 307, 357, 367; 11 (1931) 397; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 43.
Etubila RAFIN., Sylva Tell. (1838) 125 p. p.
Meiena RAFIN., Sylva Tell. (1838) 125.
Oedina VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 242, 249, 270, 271.

Inflorescentia recemosa vel spicata, floribus singula bractea suffultis. Corolla sympetala 5-meres, statu alabastri adulti parte inferiore dilatata, parte media angustata, parte apicali clavata. Antherae basifixae, loculis 4 vulgo continuis raro locellatis. Fructus ovatus, exocarpio coriaceo, mesocarpio viscoso, endocarpio sub endospermio in cupulam lignosam indurato.

The genus *Dendrophthoe* has a large area of distribution; from the Philippines it reaches southeastward to Australia, westward and southwestward to tropical Africa. In the Philippines it is represented by five species.

Key to the Philippine species of Dendrophthoe.

1. Corolla 65 to 70 mm long ..... 4. *D. longituba.*
   Corolla 30 to 47 mm long ..... 3. *D. Clementis.*
   Corolla 22 to 24 mm long ..... 2. *D. Mearnsii.*
   Corolla nearly 19 mm long; flower bud with five wings. 5. *D. mirifica.*
   Corolla 13 to 15 mm long; flower bud without wings. 1. *D. pentandra.*

1. DENDROPHTHOE PENTANDRA (Linnæus) Miquel.

Loranthus pentandrus LINN., Mantissa 1 (1767) 63; FER.-VILL., Nov. App. (1880) 184; MERR., Philip. Journ. Sci. § C 4 (1909) 141; 15 (1919) 232; Enum. Philip. Fl. Pl. 2 (1923) 108.
Loranthus farinosus DESR., in Lam., Encycl. méth. Bot. 3 (1789) 597.
Loranthus venosus BL., Verh. Bat. Genootsch. 9 (1823) 188.
Loranthus flavus BL., Bijdr. 13 (1825) 661.
Loranthus rigidus DC., Prodr. 4 (1830) 298.
Dendrophthoe farinosus and *venosus* MART., Flora 1830 1 (1830) 110

Scurrula venosa and *pentandra*, *Elytranthe rigida* and *farinosa* G. Don, Gen. Hist. Dichl. Pl. 3 (1834) 424.
Meiena axillaris Rafin., Sylva Tell. (1838) 125.
Loranthus farinaceous Griff., Ic. Pl. As. 4 (1854) 620 t.
Dendrophthoe pentandra Miq., Fl. Ind. Bat. 1 1 (1856) 818; Dans., Bull. Jard. Bot. Buitenzorg III 10 (1929) 310; 11 (1931) 417; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 47.
Dendrophthoe leucobotrya Miq., Fl. Ind. Bat. Suppl. Sum. (1860) 138, 345.
Loranthus crassus Hook. f., Fl. Brit. Ind. 5 (1886) 217.
Loranthus Zimmermanni Warb., in De Wildeman, Pl. Nov. Herb. Hort. Ten. 2 (1909) 73, t. 82.
Loranthus shawianus Elmer, Leafl. Philip. Bot. 5 (1913) 1807.
For a more extensive list of synonyms cfr. Bull. Jard. Bot. Buitenzorg III 11: 417.

Glabra, exceptis ramulis foliisque valde juvenilibus magis minusve albido stellato pubescentibus et floribus inflorescentiisque juventute densissime tomento stellato post tenuescente vestito. Ramuli teretes, ad insertiones foliorum primum dilatati post incrassati, internodiis folia adulta ferentibus plerumque 1 ad 12 cm longis, 2 ad 4 mm crassis, vetustioribus crassioribus teretibus nodis incrassatis. Folia sparsa vel in ramulis minus prolongatis magis vel minus opposita; petiolus supra basin paulum incrassatam teres, laminam versus supra applanatus, 2 ad 8 mm longus, 1 ad 1.5 mm crassus; lamina plerumque elliptica vel oblonga, 4 ad 15 cm longa, 2 ad 8 cm lata, basi attenuata, apice obtusa vel rotundata, nonnunquam irregularis, crassiuscula, fragilis, utraque facie opaca, penninervis, nervatione saepe irregulari, costa semper supra distincta subtus prominente, nervis lateralibus venisque distinctis vel indistinctis vel invisibilibus. Inflorescentiae singulae vel paucae in axillis vel gregatim in nodis defoliatis; axis ad 15 mm longus, c. 0.75 mm crassus, apicem versus paulum attenuatus, in 2 ad 10 mm inferioribus nudus, ceterum floribus ad 10 sparsis in incrassationibus insertis; pedicelli teretes, 2 ad 4 mm longi, c. 0.5 mm crassi, basi incrassati; bracteae ovatae vel suborbiculares, 1 ad 2 mm longae, obtusae vel acutae, basi amplexicaules et nonnihil cupuliformes. Calicis tubus cylindricus vel urceolatus, plerumque 1.5 ad 2.5 mm longus, 1 ad 1.75 mm latus; limbus juventute cylindricus integer vel subintegei, postea inflatione corollae infundibuliformis et laceratus, 1 ad 1.5 mm longus. Corolla statu alabastri adulti 13 ad 15 mm longa, dimidia parte inferiore diu cylindrica, ante anthesin in-

flata ad 4 mm lata, ovoidea vel ellipsoides, saepe plicis 5 longitudinalibus, dimidia parte superiore ellipsoides 5-angula, c. 1.5 mm crassa, obtusissima, postea partita usque ad tubum 3 ad 5 mm longum in lacinias 5 parte basali anguste triangulas, supra spathulatas, apice crassiusculas acutas, parte angustiore margine floccoso denticulato recurvatas. Filamenti pars libera 2 ad 3 mm longa; anthera 1.5 ad 2.5 mm longa, obtusa, loculis 4 continuis. Stylus corollae subaequilongus, a basi ad stigma aequicrassus; stigma subglobosum vel depressum, stylo sesquiplo vel duplo crassius. Fructus ovoides, ad 10 mm longus, 5 mm crassus, basi subtruncatus, apicem versus saepe subconicus, calicis limbo permanente paulum acuto coronatus, exocarpio coriaceo, mesocarpio viscoso, endocarpio sub semine in cupulam lignosam indurato.

The above description is chiefly from Philippine material, especially as to the dimensions, which in the specimens of the Netherlands Indies vary much more. The form of *D. pentandra* met with in the Philippines is the most common one, widely spread in the further area of distribution, and is only remarkable by rather small flowers.

In the Philippines *D. pentandra* is restricted to Palawan and few localities in Luzon.

Philippines, without exact locality, *Cuming 1962* (M), *2323* (Be). LUZON, Zambales Province, Subic, *Hallier 243* (M, NY). PALAWAN, Puerto Princesa, *Bur. Sci. 283 Bermejos* (M, NY, B, Be); *Bur. Sci. 45965 McGregor* (UC, NY); Iwahig River, *Merrill 692* (M, NY, Be); Addison Peak, Brooks Point, *Elmer 12610* and *12699* (M, NY, B, L, U, Be), cotypes of *Loranthus shawianus* Elm.

Further distribution: Tropical southeastern Asia; western part of the Malay Archipelago.

2. DENDROPHTHOE MEARNSII (Merrill) Danser.

Loranthus mearnsii MERR., Philip. Journ. Sci. § C 2 (1907) 271; § C 4 (1909) 136; Enum. Philip. Fl. Pl. 2 (1923) 106.

Dendrophthoe Mearnsii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 310; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 47.

Glabra, exceptis ramulis foliisque tomento stellato tenui denso vestitis mox glabrescentibus et inflorescentiis floribusque aliquo modo vestitis partibus valde excrescentibus tantum glabrescentibus. Internodia teretia, nodis paulum incrassatis, quae folia adulta ferunt plerumque 1 ad 2 cm longa, 2 ad 4 mm crassa.

Folia sparsa; petiolus supra basin paulum incrassatam teres, laminam versus supra magis applanatus quam subtus, plerumque 1 ad 1.5 mm crassus, difficile a lamina distinguendus, plerumque 5 ad 10 mm longus; lamina plerumque elliptica, 4 ad 8 cm longa, 2 ad 5.5 cm lata, basi in petiolum attenuata, apice obtusa, tenuiter coriacea, fragilis, utraque facie opaca, penninervis, nonnunquam paulum survinervis, costa subtus valde supra minus prominente, nervis lateralibus crassioribus utrinque prominentibus distinctis, tenuioribus minus distinctis. Inflorescentiae (quoad notae) in axillis foliorum singulae; axis ad 12 mm longus, basi 0.5 mm, apicem versus 0.25 mm crassus, parte c. dimidia inferiore nudus, parte superiore floribus ad 5 in incrassationibus levibus insertis; pedicelli 2.5 ad 3.5 mm longi, teretes; bracteae ovatae, paulum amplexicaules acutissimae, vel subovatae, 1.5 mm longae, basi c. 1 mm supra paulo minus latae; limbus cupuliformis vel subinfundibuliformis 1.25 ad 1.5 mm longus, dentibus 5 obtusis distinctis, nonnunquam inter dentes laceratus. Corolla statu alabastri adulti 22 ad 24 mm longa, duabus tertiis inferioribus fusiformiter inflata ad 3.5 mm lata, tertia parte superiore primum in collum 1.25 mm latum constricta, deinde in clavam ellipsoidem 5-angulam subacutam 2 mm crassam incrassata, postea ad dimidiam longitudinem dehiscens in lacinias 5 in parte angustissima recurvatas, parte inferiore anguste triangulares, parte superiore anguste lanceolatas acutas. Filamenti libera 4 mm longa; anthera c. 3.5 mm longa, linearis, obtusa, loculis 4 continuis. Stylus corollae aequilongus; stigma breve ellipsoides, stylo sesquiplo vel duplo crassius, obtusum. Cetera ignota.

Dendrophthoe Mearnsii, though very different from *D. pentandra* as it is found in the Philippines, is perhaps not to be distinguished from certain forms of the latter species from Borneo, that have longer flowers and are rusty-hairy, and that in my revision of the Loranthaceæ of the Netherlands Indies I shortly discussed on page 406, lines 18 to 25 from the top. From these forms *D. Mearnsii* differs, however, by more slender pedicels and longer, more infundibuliform calices.

Merrill describes the flowers of *D. Mearnsii* as 4-merous; what I could examine was, at least for the greater part, 5-merous, though it seemed to me that also 4-merous flowers occur.

MINDORO, Mount Halcon, 1,800 m altitude, *Merrill 5733* (M, type, NY, Be, cotypes, of *Loranthus Mearnsii* Merr.), tips of flowers red, rest green.

3. **DENDROPHTHOE CLEMENTIS (Merrill) Danser.**

Loranthus curvatus FER.-VILL., Nov. App. (1880) 184; VIDAL, Pl. Cuming. Philip. (1885) 77, 141; Rev. Pl. Vasc. Filip. (1886) 230; non Blume (1825).

Loranthus ampullaceus VIDAL, Pl. Cuming. Philip. (1885) 77, 141.

Loranthus globosus VIDAL, Rev. Pl. Vasc. Fil. (1886) 230.

Loranthus clementis MERR., Philip. Journ. Sci. 1 Suppl. (1906) 185; § C 4 (1909) 140; Enum. Philip. Fl. Pl. 2 (1923) 103.

Loranthus clementis MERR., Philip. Journ. Sci. 1 Suppl. (1906) 186; § C 4 (1909) 140; MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; MERR., Enum. Philip. Fl. Pl. 2 (1923) 103.

Loranthus hallieri and *loheri* MERR., Philip. Journ. Sci. § C 4 (1909) 140; Enum. Philip. Fl. Pl. 2 (1923) 105, 106.

Dendrophthoe Clementis, Copelandii, Hallieri, Loheri DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 307–310; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 44, 46.

Glabra, exceptis inflorescentiis floribusque juvenilibus plerumque tomento stellato denso tenui albido nonnunquam floccoso vestitis, postea glabrescentibus, sed calicis tubus semper tomentosus. Internodia teretia nodis incrassatis, plerumque 1 ad 6 cm longa, quae folia adulta ferunt 1 ad 5 mm crassa. Folia sparsa petiolata vel opposita sessilia; petiolus supra basin incrassatam teres, laminam versus supra paulum applanatus, 6 ad 12 mm longus, 0.6 ad 3 mm crassus; lamina elliptica vel triangulari-ovata vel magis rotundata ad lanceolata, 2.5 ad 18 cm longa, 1.5 ad 7 cm lata, basi cordato-amplexicaulis ad attenuata, chartacea vel coriacea, opaca, fragilis, penninervis, nervatura utraque facie omnino visibili vel nervis tenuioribus invisibilibus, costa facie inferiore magis prominente quam superiore, nervis lateralibus inferioribus in laminis cordatis saepe valde incurvatis. Inflorescentiae paucae in axillis foliorum vel gregatim in nodis vetustioribus, raro passim terminales in apicibus ramulorum axillarium; axis ad 75 mm longus, basi incrassatus, parte inferiore 0.5 ad 0.75 mm crassus, apicem versus tenuior, insertionibus florum incrassatis; pedicelli teretes, fere 0 ad 4 mm longi, c. 0.3 mm crassi, numerosi (ad 50); bracteae ovatae vel oblongo-ovatae, c. 0.75 ad 1.25 mm longae, acutae vel acuminatae vix amplexicaules. Calicis tubus 1.5 ad 1.75 mm longus, fere 1 mm latus, ovato-campanulatus, basi obtusissimus, limbum versus fere conicus; limbus erectus vel cupulatus, 0.5 ad 0.75 mm longus, plerumque distincte obtuse 5-dentatus, glabritie a tubo valde distinctus. Corolla statu alabastri adulti 30 ad 47 mm longa, tota longitudine incurvata, a basi c. 0.75 mm lata ad duas tertias longitudinis sensim ad 2

mm dilatata, ibi 5-angula vel plicis 5 longitudinalibus, deinde paulum attenuata denique in clavam subgracilem subobtusam vel acutam c. 5 mm longam, 0.75 mm crassam incrassata, postea dehiscens usque ad partem latissimam in lacinias 5 recurvatas vel etiam revolutas, anguste lineares, obtusas, parte angusta margine floccoso. Filamenti pars libera 4 ad 5 mm longa; anthera 1.25 ad 3.25 mm longa, lanceolata, magis minusve acuta acuminata raro obtusa, loculis 4 continuis. Stylus filiformis, vix vel ad 2 mm longior quam corolla; stigma subglobosum, stylo sesquiplo vel duplo crassius. Fructus ovoides-conicus, ad 7 mm longus 5 mm crassus, basi subtruncatus, calicis limbo erecto paulum aucto coronatus, exocarpio coriaceo, mesocarpio viscoso, endocarpio sub semine in cupulam lignosam fere 5 mm latam 1.5 mm altam indurato.

Under the name *Dendrophthoe Clementis* I have united four species, the differences among which are insufficient for specific distinction, whereas intermediate forms occur. Rather strongly different is the form distinguished by Merrill as *Loranthus Hallieri*, by cordate-amplexicaulous leaves, but such forms also occur in other loranthaceous species (for example, *Dendrophthoe falcata* and *Macrosolen pseudoperfoliatus*).

Dendrophthoe Clementis is widely distributed in the Philippines, from Camiguin, north of Luzon, to central Luzon, Mindanao, and Palawan, but it has not been collected on other islands. It occurs from sea level to 1,500 m altitude. Merrill mentions his *Loranthus Hallieri* as *Hallier s. n.* from Basilan, but the type specimen in the Philippine National Herbarium is *Hallier 628* from Zamboanga, Mindanao.

The color of the corolla varies, according to the herbarium labels, from red with yellow tips to yellow with red tips or red with yellow neck and red tips.

The only species to which *Dendrophthoe Clementis* is closely allied is *D. constricta*, from Borneo and Celebes, but this is a coarser plant with smaller flowers.

Philippines, without exact locality, *Cuming 1946, 1955, 1963* (M), *1965* (M, L). CAMIGUIN (Babuyan Islands), *Bur. Sci. 4111 Fénix* (M). LUZON, (Eurike ? "northern Luzon"), *Warburg 12122* (Be): Ilocos Norte Province, *Bur. Sci. 2288 Mearns* (M); Bangui, *Bur. Sci. 43600 McGregor* (M, UC), 10 m altitude, *Bur. Sci. 27482 Ramos* (M, NY, B, L): Benguet, Subprovince, Daklan to Kabayan, 1,500 m altitude, *Merrill 4407*

(M, type, NY, Be, cotypes of *Loranthus copelandi* Merr.) ; Mount Pulog, 1,350 m altitude, *F. B. 16232 Curran, Merritt, and Zschokke* (M, NY, L) : Cagayan Province, *Bur. Sci. 7847 Ramos* (L), *Bur. Sci. 7847 Ramos* (M, NY) ; Duyon, *Bur. Sci. 7826 Ramos* (M, type, Be, cotype of *Loranthus loheri* var. *ampla*) ; Peñablanca, *Adduru 87* (M), *Bur. Sci. 22744 Castillo* (M, NY), low altitude, *Bur. Sci. 46533 Ramos and Edaño* (M, NY, UC, S, B), *Bur. Sci. 46632 Ramos and Edaño* (M, NY, UC, S) ; Pinacanawan River, low altitude, *Bur. Sci. 76879 Ramos* (M) : Isabela Province, Simaun River, *F. B. 18577 Alvarez* (M) ; Santiago, *Clemens 18032* (UC) ; San Mariano, Dapinig, 1,200 m altitude, *Bur. Sci. 46805 Ramos and Edaño* (M, UC) ; Tumauini, *Wester 19083* (M) : Zambales Province, Anuling, low altitude, *Bur. Sci. 44582 Ramos and Edaño* (M, NY, UC, S, B) ; Olongapo, *Sandkuhl 21* (M) : Rizal Province, Rio San Francisco del Monte, *Loher 4481* (M), type of *Loranthus loheri* Merr.; Pasig River, Santa Mesa, *Hallier s. n.* (NY). MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, 800 m altitude, *Clemens s. n.* (M, type, Be, cotype of *Loranthus clementis* Merr.) : Zamboanga Province, Zamboanga, *Hallier 628* (M, type, NY, cotype of *Loranthus hallieri* Merr.), *Merrill 814* (M, Be), *Elmer 12035* (M, NY, B, L, U) ; *Aldaba 19106* (M) ; low altitude, *Bur. Sci. 37455 Ramos and Edaño* (M, B, Be) ; Lambayao, 1 m altitude, *F. B. 30920* (M), *F. B. 30487* (M, NY, UC) *Mabesa and Espiritu* (probably twigs of the same individual, the peculiarities of the specimens, the field notes, and field number being quite the same) ; Santa Maria, *Bur. Sci. 16490 Reillo* (M). PALAWAN, Pabellones (in Taytay Bay), 0 m altitude, *Merrill 9437* (M) ; Apulit Island (in Taytay Bay), seashore, *Merrill 9432* (M, NY, B, S, L).

4. DENDROPHTHOE LONGITUBA (Elmer) Danser.

Loranthus longituba ELMER, Leafl. Philip. Bot. 6 (1913) 196; (*-bus*) MERR., Enum. Philip. Fl. Pl. 2 (1923) 106.

Dendrophthoe longituba DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 310; 11 (1931) 415; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 47.

Ramuli robusti, internodiis teretibus nodis incrassatis, junioribus nodis applanatis, folia adulta ferentibus ad 3.5 cm longis, 2.5 ad 5 mm crassis. Folia sparsa, saepe subopposita raro opposita; petiolus teres, basi paulum incrassatus, prope laminam leviter canaliculatus, 15 ad 35 mm longus, 1.5 ad 2.5 mm crassus; lamina ovato-cordata, 11 ad 20 cm longa, 4.5 ad 9 cm lata, basi late et profunde cordata, apicem acutum versus acuminata, crasse

coriacea, opaca, costa et nervis lateralibus usque ad tertii ordinis facie inferiore valde facie superiore minus prominentibus, lateralibus incurvatis. Inflorescentiae floribusque juventute tomento denso ochraceo stellato, in corolla excrescente mox tenuescente, postea etiam in inflorescentiis tenuescente, in calicibus diu permanente, vestitae, nodis defoliatis insertae; axis teres, 3 ad 6 cm longus, ad insertiones florum leviter incrassatus, basi 2.5 ad 3 mm crassus, apicem versus ad 1 ad 1.5 mm attenuatus, omnino fere florifer, floribus sparsis; pedicelli 0.5 ad 1 mm longi, c. 0.75 mm crassi; bracteae triangulares, convexae, acutae, c. 1.5 mm longae. Calicis tubus campanulato-urceolatus, 1.5 ad 2 mm longus paulo minus latus; limbus paulum cupuliformis, c. 0.75 mm longus, leviter 5-dentatus. Corolla statu alabastri adulti 65 ad 70 mm longa, in 20 mm inferioribus cylindrica 2 mm lata, deinde fusiformiter dilatata ad 6 mm lata, denique in partem apicalem c. 12 mm longam 1.5 mm crassam prismaticam 5-angulam obtusam attenuata, tota longitudine incurvata, postea dehiscens in lacinias 5, ad c. 13 mm ab apice recurvatas vel etiam revolutas, sublineares, c. 0.8 mm latas, subacutas, parte angustissima margine floccoso, tubum c. 40 mm longum relinquens. Filamenti pars libera 6 ad 7 mm longa, glabra; anthera 5 ad 6 mm longa, e basi filamento aequilata sensim attenuata, apice acute acuminata. Stylus filiformis, 2 ad 3 mm longior quam corolla; stigma ellipsoides, obtusum, stylo paulo tantum crassius. Cetera ignota.

MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, between Duros and Cawilanan Peaks, 1,500 m altitude, *Elmer 14053* (M, NY, B, L), cotypes of *Loranthus longituba* Elm.

Probably second specimen: MINDANAO, Surigao Province, Placer, 150 m altitude, *Wenzel 3027* (UC), flowers white. This specimen differs from the type by smaller and less cordate leaves; the flowers are in a very young state; the indication "flowers white" therefore probably concerns the indumentum, that in the herbarium specimen is ochraceous.

Further distribution: Borneo, Belitoeng.

5. **DENDROPHTHOE MIRIFICA** Danser sp. nov.

Glabra, exceptis inflorescentiis floribusque pilis stellatis ferrugineis vestitis, corollis tamen cum excrescunt mox sparse pilosis. Caulis (unicus notus) c. 30 cm longus, teres, nodis incrassatis, internodiis (omnibus folia adulta ferentibus) 1.5 ad 4.5 cm longis, 1.25 ad 2.5 mm crassis, levibus, substriatis. Folia sparsa; petiolus difficile a lamina distinguendus, 1 ad 3 mm longus, basi

teres, prope laminam supra paulum applanata; lamina ovato-oblonga, 6 ad 11 cm longa, 2 ad 4.5 cm lata, basi cuneata vel sub basi rotundata in petiolum contracta, acuta, chartacea, utrinque opaca tenuissime granulata, subcurvinervis, paribus 2 nervorum lateralium prope costae basin orientibus, pari interiore usque fere ad apicem, pari exteriore ad dimidiam folii longitudinem percurrente, nervis venisque omnibus facie inferiore distincte superiore leviter prominentibus. Inflorescentiae numerosiores in axillis foliorum; pedunculus c. 0.75 mm longus 0.5 mm latus, paulum applanatus, apice flores 2 ferens vel supra flores 2 paulum prolongatus; pedicelli c. 0.75 mm longi, 0.3 mm crassi, teretes; bracteae rotundato-triangulares, acutae, convexae, 1 ad 1.25 mm longae, basi non cupulatae. Calicis tubus campanulatus, 1.25 mm longus, 1 mm latus, in herbario longitudinaliter rugosus; limbus erectus vel subinfundibuliformis, integer, c. 0.25 mm longus. Corolla statu alabastri adulti c. 18 ad 19 mm longa, in 15 mm inferioribus fusiformiter inflata, basi c. 1 mm medio 3 ad 4 mm lata, supra inflationem in partam apicalem prismaticam 5-angulam 4 mm longam, 2 ad 2.5 mm latam transiens, apice rotundata, a c. 1 mm supra basin usque ad apicem carinis 5 acutis dimidia longitudine alas 5 angustas formentibus (ut in Macrosolene), postea dehiscens usque ad 11 mm supra basin in lacinias 5 subacutas 3 ad 3.5 mm ab apice reflexas. Filamenti pars libera 2 mm longa; anthera oblonga, c. 3 mm lata, obtusa, loculis 4 continuis. Stylus corollae aequilongus, a basi tenuissima ad apicem sensim incrassatus, sub stigmate c. 0.4 mm crassus; stigma subglobosum, obtusissimum. Cetera ignota.

This peculiar species differs from all *Dendrophthoe* known to me by the style gradually thickened from the base to the top, the 5-alate flower buds, and the campanulate calyx with entire, short limb. Also the 2-flowered inflorescences are remarkable and show a resemblance to *Amyema* or *Taxillus*, but the peduncle, often somewhat prolonged above the flowers, shows that the inflorescence is a reduced raceme, and the 5-merous regular corolla shows, moreover, that this species is not a *Taxillus*.

BASILAN, Komalarang, *Bur. Sci. 16160 Reillo* (M).

XI. Genus SCURRULA Linnæus

Scurrula LINN., Sp. Pl. ed. 1 1 (1753) 110; Gen. Pl. ed. 5 (1754) 48; G. DON., Gen. Hist. Dichl. Pl. 3 (1834) 402, 421; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 349, 356, 358, 367; 11 (1931) 236, 427; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 5, 101.

Etubila RAFIN., Sylva Tell. (1838) 125.
Antriba RAFIN., Sylva Tell. (1838) 126.
Cichlanthus VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 243, 253, 270, 271.

Inflorescentia racemosa, floribus bractea singula suffultis. Corolla sympetala, 4-meres, zygomorpha, statu alabastri adulti parte inferiore inflata, parte media angustata, parte apicali clavata, apice decurvata, postea latere inferiore multo profundius partita quam inter alias lacinias, laciniis omnibus sursum reflexis, spathulatis, crassiusculis, acutis. Antherae basifixae, obtusae, 4-loculares. Stylus corollae aequilongus. Fructus clavatus, parte superiore crassa semen continente, exocarpio coriaceo, mesocarpio viscoso, endocarpio infundibuliformi, quadriangulo, lignoso, basi in stipitem lignosum prolongato.

The genus *Scurrula* is spread all over the Philippines. Outside the Philippine Archipelago it is found in the southeastern part of the Asiatic Continent and the western half of the Malay Archipelago, with its eastern limit in Borneo and Timor.

It is remarkable that in the Philippines *Scurrula* is much commoner in Luzon than in the southern islands; in Negros and Panay it has not been collected at all, and from Mindanao I have seen only two numbers. Perhaps we may partly ascribe this to the circumstance that *Scurrulæ* prefer open, cultivated regions, with the many fruit trees of the native villages, to those covered with tropical forests.

All of the species of *Scurrula* are distinguished with difficulty, and sharp species limits appear to exist nowhere. On the other hand, it is impossible to suppose that all *Scurrulæ* might be forms of a single species. Among the Philippine *Scurrulæ* I could distinguish not more than three species, but I must confess, that the species limits, accepted by me, do not satisfy me much.

Key to the Philippine species of Scurrula.

1. Large-leaved, long-flowered, with light-colored tomentum; leaves usually 4 to 9 cm long, 2.5 to 6 cm broad, roundly-elliptical to oblong; corolla and style 15 to 25 mm long ..... 3. *S. philippensis.*
Large-leaved, short-flowered, with ferrugineous tomentum; leaves rounded-elliptical to oblong, 4 to 9 cm long, 1.5 to 4 cm broad; corolla and style about 10 mm long ..... 2. *S. ferruginea.*
Small-leaved, small-flowered; leaves usually rounded- to lanceolate-obovate, 1.5 to 6 cm long, 1 to 3 cm broad; corolla and style usually 9 to 15 mm long, rarely longer ..... 1. *S. parasitica.*

1. SCURRULA PARASITICA Linnæus.

Scurrula parasitica LINN., Sp., Pl. ed. 1 1 (1753) 110; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 352; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 104.

Loranthus Scurrula LINN., Sp. Pl. ed. 2 1 (1762) 472.

Loranthus buddleioides DESR., in Lam., Encycl. Méth. Bot. 3 (1789) 600.

Loranthus fuscus BL., Verh. Bot. Genootsch. 9 (1823) 192; FER.-VILL., Nov. App. (1880) 184; MERR., Enum. Philip. Fl. Pl. 2 (1923) 111.

Loranthus atropurpureus var. *cuneatus* BL., Bijdr. 13 (1825) 660.

Loranthus gracilifolius SCHULT., Syst. 7 1 (1829) 99.

Loranthus cinnamomeous DC., Mém. Lor. (1830) 27, t. 6.

Loranthus obtectus, graciliflorus, Heynei, sphaeroideus, laevigatus, rufidulus DC., Prodr. 4 (1930) 299–302.

Dendrophthoe gracilifolius MART., Flora 1 (1830) 110.

Dendrophthoe gracilifolius MART., in Schult., Syst. 7 2 (1830) 1614.

Loranthus sphenoideus BL., in Schult., Syst. 7 2 (1830) 1612, 1730; FER.-VILL., Nov. App. (1880) 183; VIDAL, Pl. Cuming. Philip. (1885) 6, 77, 140; Rev. Pl. Vasc. Filip. (1886) 231; MERR., Philip. Journ. Sci. § C 4 (1909) 139; Enum. Philip. Fl. Pl. 2 (1923) 110.

Loranthus Heyneanus SCHULT., Syst. 7 2 (1830) 1650 nom. nud.

Loranthus Roxburghianus BL., in Schult., Syst. 7 2 (1830) 1730.

Dendrophthoe obtectus, Heynei, cinnamomeus, sphenoides, Scurrula, Roxburghii, budleioides, laevigata, rufidula G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 420–422.

Scurrula fusca G. DON, Gen. Hist. Dichl. Pl. 3 (1934) 421; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 350; 11 (1931) 434; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 102.

Antriba budleioides RAFIN., Sylva Tell. (1838) 126.

Loranthus fulvus and *fuscatus* KORTH., Verh. Bat. Genootsch. 17 (1839) 273.

Loranthus concavifolius GRIFF., Not. Pl. As. 4 (1854) 615.

Dendrophthoe repanda var. *sphaeroidea, Dendrophthoe fusca, fulva, fuscata* MIQ., Fl. Ind. Bat. 1 1 (1856) 812–815.

Dendrophthoe ignea SCHEFF., Nat. Tijdschr. Ned. Ind. 31 (1870) 357.

Loranthus igneus BENTH. and HOOK. F., Gen. Pl. 3 (1880) 209.

Loranthus malaccensis HOOK. F., Fl. Br. Ind. 5 (1886) 210.

Cichlanthus Scurrula and *fuscus* VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 253.

Loranthus confusus and *similis* MERR., Philip. Journ. Sci. § C 7 (1912) 261, 262; Enum. Philip. Fl. Pl. 2 (1923) 103, 110.

Loranthus parasiticus MERR., Philip. Journ. Sci. 15 (1919) 232; Enum. Philip. Fl. Pl. 2 (1923) 108.

Scurrula ignea DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 351.

Scurrula similis DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 353; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 105.

For further literature about these synonyms cfr. HOOKER F., Fl. Br. Ind. 5: 208; DANS., Bull. Jard. Bot. Buitenzorg III 11: 434.

Omnes partes juveniles tomento e pilis ramosis composito, nunquam longo vel floccoso, albo vel cano vel ochraceo vel fusco, vestito, folia facie superiore mox glabrescentia, inferiore etiam glabrescentia vel tomento magis vel minus permanente, inflorescentiae tomento permanente sed in partibus excrescentibus tenuescente. Internodia folia adulta ferentia longitudine valde variabilis, 1 ad 2 mm crassa. Petiolus basi teres, laminam versus supra applanatus vel sulcatus, plerumque 3 ad 10 mm longus, 0.3 ad 1.25 mm crassus; lamina rotundato-elliptica ad oblonga vel obovata ad lanceolato-obovata, plerumque 1.5 ad 6 cm longa, 1 ad 3 cm lata, raro major, basi vulgo cuneata rarius rotundata, apice plerumque rotundata vel obtusa, rarius acutiuscula. Inflorescentiae plerumque 2 ad 4 florae; axis plerumque brevis, 0 ad 4 raro ad 6 mm longus; pedicelli 1 ad 3 mm longi; bracteae 1 ad 2 mm longae, suborbiculares ad oblongae. Calicis campanulato-infundibuliformis vel nonnihil piriformis, 2 ad 2.5 mm longus, 0.75 ad 1 mm latus, limbo plerumque nullo, rarius indistincto ad 0.5 mm longo. Corolla 9 ad 15 mm longa, rarius longior, tubo 1.5 ad 2.5 mm lato, basi rotundato, limbum versus attenuato, laciniis parte reflexa 3 ad 4 mm longis, acutiusculis vel acutis. Filamenti pars libera 1 ad 2 mm longa; anthera 1 ad 1.5 mm longa. Fructus claviformis, apice rotundatus, basin versis plerumque sensim attenuatus, 9 ad 11 mm longus, 2.5 ad 3.5 mm crassus.

Scurrula parasitica is spread all over the Philippines from sea level to 2,300 m elevation.

Formerly, I treated *S. parasitica* and *S. fusca* as separate species, but further studies proved that these two can as little be kept apart as several others that already had been taken together by Hooker under *Loranthus scurrula* and by me under *S. fusca*. The *S. parasitica* we get this way is certainly very polymorphic, but provisorily this conception seems more correct than describing the most striking local forms as different species and neglecting the numerous intermediate ones. Perhaps a monographic study of *Scurrula* will throw more light upon the species limits in this genus.

Loranthus confusus Merr. is certainly a striking form, typical for Luzon, with small, narrowly obovate leaves, whitish or grayish tomentum and corolla, and style nearly 10 mm long. South

of Luzon there occur forms with larger leaves and longer flowers that cannot be separated from it. *Loranthus similis* is one of these forms and even not a typical one. Merrill describes the corolla as 18 mm long, but the type has the corollas 13 to 14 mm long. Similar forms with longer flowers are, however, not rare in the islands south of Luzon.

Philippines, without exact locality, *Cuming 1970* (L, partly, cfr. *Taxillus estipitatus*) *490* (M, Be), *1959* (M, type of *Loranthus confusus* Merr.). LUZON, Ilocos Norte Province, Burgos, 18 m altitude, *Bur. Sci. 27202 Ramos* (M); Bangui *Bur. Sci. 4352 McGregor* (M, UC, B, Be); Santa Maria, Barrio Lungog, summit of Magei Hill, *Clemens 17855* (UC): La Union Province, Bauang, *Elmer 5711* (M), *Fénix 119* (M), *Bur. Sci. 12951, Fénix* (M, B, L, Be): Mountain Province, Bontoc, Gaddac, Ginsadan, 1,300 m altitude, *Vanoverbergh 402* and *403* (M); Lepanto, *Comisión de la Flora Forestal de Filipinas 1693* (L); Benguet Subprovince, Susod, 700 m altitude, *F. B. 10903 Curran* (M); Sablan, *Williams 1379* (M, NY); Baguio, *Elmer 8735* (NY, B, L); *F. B. 4880 Curran* (M, Be); *Williams 983* (NY), *Williams 984* (M, type, NY, cotype of *Loranthus similis* Merr.); Mount Pauai, 2,300 m altitude, *Bur. Sci. 82366 Quisumbing and Sulit* (M): Pangasinan Province, "Busquis de Bani," *Bur. Sci. 4977 Ramos* (M); Bayambang, *Merrill 66* (M); San Quintin, *Octubre 5671* (M); Siblong, Villasis, *Alberto 35* (M); Mount San Isidro, Labrador, 200 m altitude, *Bur. Sci. 29929 Fénix* (M, B, L): Zambales Province, Silanguin, *F. B. 5928 Curran* (M, Be); Santa Fe, 90 m altitude, *F. B. 29536 Antonio* (UC, M, B); Pombato, *Gates and Feria 8153* (M); Anuling, Iba, low altitude, *Bur. Sci. 44575 Ramos and Edaño* (M, NY, UC, B, S): Bulacan, Norzagaray, *Yoder 201* (M); Angat, low altitude, *Bur. Sci. 34196 Ramos and Edaño* (M): Bataan Province, Limay, 10 m altitude, *Bur. Sci. 9612 C. B. Robinson* (M, NY, B, L, Be): Rizal Province, trail to Bosoboso, *Bur. Sci. 110 Foxworthy* (M, NY, B, Be); San Andales, *Bur. Sci. 19252 Reillo* (M, NY, UC, B); Puro, 300 m altitude, *Bur. Sci. 24071 Ramos* (M, B, L); Morong, *Loher 4470* (Be); Pantay, *Ramos 254* (M, U, Br): Tayabas Province, Lucena, sea level, *Whitford 590* (M): Camarines Province, Mount Isarog, 60 m altitude, *Bur. Sci. 22078 Ramos* (M); Sorsogon Province, Mount Bulusan, Irosin, *Elmer 15252* (M, UC, B, L, U). ALABAT, low altitude, *Bur. Sci. 48094 Ramos and Edaño* (M, NY, UC). MINDORO, Tubili, 2 m altitude, *F. B. 8792 Merritt* (M); Puerto

Galera, Baco, 0 m altitude, *Bur. Sci. 15289 Kienholz* (M, UC, NY). MARINDUQUE, *Comisión de la Flora Forestal de Filipinas 1695* (L). ROMBLON, *Elmer 12158* (NY, B, L, U, Be). SIBUYAN, *Elmer s. n. ?* (M). TICAO, on beach, *F. B. 2532 W. W. Clark* (M, NY, Be). SAMAR, Loquilocon, 250 m altitude, *Bur. Sci. 43724 McGregor* (M, NY, UC; S, B). BILIRAN, mangrove-swamp tree, *Bur. Sci. 18589 McGregor* (M). LEYTE, Jaro, Buenavista, 500 m altitude, *Wenzel 973* (M) ; Mount Abucayan, low altitude, *Bur. Sci. 41733 Edaño* (M, B, S, L, Be). GUIMARAS, Nagaba, 100 m altitude, *F. B. 249 Gammill* (M, NY, Be). CEBU, Cebu, *Bur. Sci. 11038 Ramos* (M, Be). BOHOL, Bilar, 600 m altitude, *Bur. Sci. 42693 Ramos* (M, UC) ; Dimiao, 300 m altitude, *Bur. Sci. 42685 Ramos* (M, B, Be). MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, *Clemens s. n.* (M), *Clemens 459* (M, B, Be) : Davao Province, Davao, *Williams 3062* (NY). CULION, *Herre 1006* (NY). PALAWAN, Taytay, 3 to 4 m altitude, *Merrill 9262* (M, NY, B, L).

Further distribution, the same as that of the genus.

2. SCURRULA PHILIPPENSIS (Chamisso and Schlechter) G. Don.

Loranthus philippensis CHAM. and SCHLECHT., Linnaea 3 (1828) 204; DC., Prodr. 4 (1830) 302; SCHULT., Syst. 7 2 (1830) 1633; BLUME, in Schult., Syst. 7 2 (1830) 1730; Fl. Javae (1830) 14; DIETR., Synopsis 2 (1840) 1075; ASA GRAY, U. S. Explor. Exped. 1 (1854) 741; FER.-VILL., Nov. App. (1880) 183; VIDAL, Rev. Pl. Vasc. Fil. (1886) 231; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 188; MERR., Philip. Journ. Sci. § C 3 (1908) 84; 4 (1909) 139; LECOMTE, Not. Syst. 3 (1914) 166; in Sargent, Pl. Wilson. 3 (1916) 317; MERR., Sp. Blanco. (1918) 131; Enum. Philip. Fl. Pl. 2 (1923) 108; SULIT, Philip. Agr. 19 (1931) 665–673.

Scurrula philippensis G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 442; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 352; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 104.

Lonicera Symphoricarpos BLANCO, Fl. Fil. ed. 1 (1837) 161.

Loranthus pauciflorus BLANCO, Fl. Filip. ed. 1 (1837) 235.

Loranthus Junghuhnii MOLKENB., in Miq., Pl. Jungh. (1852) 113; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 164; KOERNICKE, Ann. Jard. Bot. Buitenzorg Suppl. 3 2 (1910) 677; KOORDERS, Exkursionsfl. 2 (1912) 161.

Dendrophthoe philippensis and *Junghuhnii* MIQ., Fl. Ind. Bat. 1 1 (1856) 817.

Loranthus philippinensis BENTH. and HOOK. F., Gen. Pl. 3 (1880) 209; VIDAL, Pl. Cuming Philip. (1885) 6, 78, 140.

Cichlanthus philippensis VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 253.

Scurrula Junghuhnii DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 351; 11 (1931) 437; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 103.

Scurrula philippinensis DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 466.

Omnes partes juveniles tomento e pilis ramosis composito plerumque albido nonnunquam flavido vel subfusco dense vestitae, ramulis et foliorum paginis superioribus mox glabrescentibus, foliorum paginis inferioribus denique parce pilosis vel glabris, inflorescentiis tomento permanente, in partibus excrescentibus (ut corolla) tenuescente. Internodia folia adulta ferentia plerumque 3 ad 4 cm longa, 2 ad 4 mm crassa. Petiolus teres vel supra leviter sulcatus, plerumque 3 ad 10 mm longus, 1 ad 1.5 mm crassus; lamina rotundato-elliptica vel elliptica vel oblonga, basi cuneata vel rotundata vel leviter cordata, apice obtusa vel rotundata, tenuiter coriacea, opaca vel supra sublucida, 4 ad 9 cm longa, 2.5 ad 6 cm lata. Inflorescentiae plerumque 2 ad 8-florae; axis ad 12 mm longus; pedicelli plerumque 2 ad 4 mm longi; bracteae ellipticae, concave, 1 ad 1.5 mm longae, obtusae. Calicis tubus obovato-campanulatus, c. 3.5 mm longus, limbus erectus vel subinfundibuliformis, ad 0.5 mm longus, integer vel leviter obtuseque 4-dentatus. Corolla plerumque 15 ad 25 mm longa, tubo e basi rotundata ad 3 mm lata sensim attenuato, partibus laciniarum reflexis anguste lanceolatis acutissimis; anthera 1.5 ad 3 mm longa. Stylus c. 3 mm ab apice undulatus. Fructus clavatus, ad 10 mm longus, ad 3.5 mm crassus, sub apice rotundato sensim attenuatus, plerumque calicis limbo coronatus.

In the Philippines *S. philippensis* is restricted to Luzon, where it occurs from sea level to 2,300 m altitude. It appears, however, impossible to keep it separated from the Javan *Scurrula Junghuhnii*, though there are small differences. *Scurrula philippensis* has a whitish tomentum, and the corolla is often longer and with more acute lobes, whereas *S. Junghuhnii* has a yellowish or even brownish tomentum and more obtuse corolla lobes. The type of *S. philippensis* is rather short-flowered (corolla and style nearly 15 mm long), but for the remainder it is quite typical.

Philippines, without exact locality, *A. von Chamisso* (Be, type of *Loranthus philippensis* Cham. and Schlecht.), *Cuming 491* (M, L, Be), *Cuming 1977* (M). LUZON, Mountain Prov-

ince, Benguet, Sablang, *Bur. Sci. 12728 Fénix* (M, B, L) ; Pauai, 2,300 m altitude, *Bur. Sci. 31676 Santos* (M, NY, S, L) ; Baguio, *Elmer 8873* (NY, B, L) : Cagayan Province, Tuao, *Bur. Sci. 7865 Ramos* (M) : Isabela Province, San Mariano, 300 m altitude, *Bur. Sci. 47060 Ramos and Edaño* (M, UC, NY, S) : Nueva Vizcaya Province, Bambang, *F. B. 15783 Curran and Merritt* (M, Be) : Pangasinan Province, *Otanes s. n.* (U) ; *Bur. Sci. 4972 Ramos* (M, NY) ; Labrador, 25 m altitude, *Bur. Sci. 30028 Fénix* (M, B, L) : Zambales Province, Anuling, low altitude, *Bur. Sci. 44634 Ramos and Edaño* (M, UC, NY, B) : Pampanga Province, Arayat, *Warburg 13328* (Be) : Bataan Province, *F. B. 5790 Curran* (M) ; Dinalupihan, *Merrill 1585* (M) : Bulacan Province, *Bur. Sci. 22414 Ramos* (M) ; Norzagaray, *Yoder 241* (M) : Rizal Province, Bosoboso, *F. B. 3169 Ahern's coll.* (M, NY, B, S) ; Antipolo, *Merrill 1688* (M, Be) ; Merrill, *Sp. Blancoanae 322* (NY, B, Be, L) ; 700 m altitude, *Bur. Sci. 128 Foxworthy* (M, NY, Be) ; Munang, *Bur. Sci. 10881 Ramos* (M, B, L, Be) ; San Andales, *Bur. Sci. 19285 Reillo* (M, S) ; Mayatagan River, low altitude, *Bur. Sci. 48763 Edaño* (M, UC, NY) ; Montalban, *Loher 4472* (Be) ; *Elmer 12577* (M, NY, B, L, U) : Laguna Province, Los Baños, *Baker 999* (M), *Elmer 17918* (M, UC, B, L, U), *Hallier s. n.* (M) ; College Campus, 75 m altitude, *F. B. 26452 Nano* (M) ; Lilio, *Bur. Sci. 6013 C. B. Robinson* (M, NY), *De Leon 4074* (M) ; Calauan, *McGregor 484* (M, U, Br) : Batangas Province, Santo Tomas, *Aurelia Malvar 316* (M) : Tayabas Province, Casiguran, low altitude, *Bur. Sci. 45370 Ramos and Edaño* (M, NY, UC, B).

Further distribution: Java.

3. **SCURRULA FERRUGINEA** (Jack) **Danser.**

Loranthus ferrugineus JACK, Malay Misc. 1 (1820) 279, t. 59; MERR., Philip. Journ. Sci. § C 4 (1909) 140; Enum. Philip. Fl. Pl. 2 (1923) 104.

Loranthus chrysanthus DC., Prodr. 4 (1830) 300.

Loranthus ferruginosus ROXB., Fl. Ind. ed. 2 2 (1832) 188.

Dendrophthoe ferrugineous and *chrysanthus* G. DON, Gen. Hist. Dichl. Pl. 3 (1834) 420.

Etubila ferruginea RAFIN., Sylva Tell. (1838) 159.

Loranthus chrysanthoides KORTH., Verh. Bat. Genootsch. 17 (1839) 227, 269.

Dendrophthoe chrysanthoides MIQ., Fl. Ind. Bat. 1 1 (1856) 813.

Cichlanthus ferrugineus and *chrysanthus* VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 253.

Scurrula chrysanthoides DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 350.

Scurrula ferruginea DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 350; 11 (1931) 432; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 102.

Omnes partes juveniles tomento denso floccoso ferrugineo vestitae, foliorum pagina superiore mox glabrescente, pagina inferiore tomento tenuescente, inflorescentiis tomento permanente sed in partibus excrescentibus paulum tenuescente. Internodia folia adulta ferentia 0 ad 5 cm longa, 1 ad 3 mm crassa. Petiolus plerumque 2 ad 9 mm longus, 0.5 ad 1 mm crassus, teres, supra paulum applanatus, laminam versus canaliculatus; lamina circiter oblonga, saepe paulum ovata vel obovata, plerumque 4 ad 9 cm longa, 1.5 ad 4 cm lata, basi rotundata vel leviter cordata, apice obtusa vel rotundata, tenuiter coriacea, opaca. Inflorescentiae plerumque 2- ad 5-florae; axis 0 ad 3 mm longus raro longior; pedicelli plerumque 1 ad 3 mm longi; bracteae ovatae vel oblongae, 1 ad 2 mm longae, obtusae, naviculatae. Calicis tubus ovatus, 2.5 ad 3.5 mm longus, 2 ad 2.5 mm latus; limbus erectus, c. 0.5 mm longus, integer. Corolla c. 10 mm longa, crassiuscula, haud gracilis, paulum tantum curvata, lobis paulum spathulatis obtusis. Filamenti pars libera c. 1.5 mm longa. Anthera 0.75 ad 1 mm longa. Stylus ad c. 1 mm ab apice undulatus. Fructus clavatus, e parte superiore globosa vel breve ellipsoides, 3 ad 4 mm crassa, basin versus subabrupte attenuatus, 10 ad 12 mm longus.

The above description is based on the Palawan specimens only. They represent the form described from Borneo by Korthals under the name *Loranthus chrysanthoides*. In the Philippines *S. ferruginea* does not occur in other islands. Outside of the Philippines it is widely spread in the southeastern part of the Asiatic Continent and in the western part of the Malay Archipelago.

PALAWAN, *Bur. Sci. 15534 Fénix* (L); Puerto Princesa, *Bur. Sci. 203* (M, NY, B, Be), *Bur. Sci. 45950 McGregor* (M, UC, NY, B); Mount Pulgar, *Elmer 12905* (M, NY, B, L, U); Iwahig River, *Merrill 705* (M, NY, Be); Iwahig, *Bur. Sci. 823 Foxworthy* (M, NY, B, Be); Banalingajan River, 300 m altitude, *Bur. Sci. 77412 Edaño* (M); Mount Kabangaan, 300 m altitude, *Bur. Sci. 77733 Edaño* (M); 450 m altitude, *Bur. Sci. 77693 Edaño* (M).

XII. Genus TAXILLUS Van Tieghem

Taxillus VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 243, 256, 270, 271; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 354, 367; 11 (1931) 236, 444; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 123.

Phyllodesmis VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 243, 255, 270, 271; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 349.

Bakerella, Locella, Septulina VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 242, 244, 261, 263, 270, 271.

Inflorescentia umbellata, floribus bractea singulae suffultis. Corolla sympetala, 4 vel 5 meres, zygomorpha, statu alabastri adulti parte inferiore inflata, parte media augustata, parte apicali clavata, apice decurvata, postea latere inferiore profundius partita quam inter alias lacinias, laciniis omnibus sursum reflexis. Antherae basifixae, 4-loculares. Stylus exarticulatus. Fructus ovoides vel ellipsoides, exocarpio coriaceo, mesocarpio viscoso, endocarpio sub semine in cupulan lignosam indurato.

The genus *Taxillus* is spread in southeastern Asia, in the archipelagoes from Ceylon to Madagascar, and in South Africa. In the Malay Archipelago it is represented by one species, which is restricted to the Philippines and North Borneo.

1. TAXILLUS ESTIPITATUS (Stapf) Danser.

Loranthus estipitatus STAPF, Trans. Linn. Soc. II Bot. 4 (1894) 221; FORB. and HEMSL., Journ. Linn. Soc. Bot. 26 (1894) 405; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 164; MERR., Philip. Journ. Sci. § C 4 (1909) 139; DUNN and TUTCHER, Kew Bull. Add. Ser. 10 (1912) 229; GAMBLE, Journ. As. Soc. Beng. 75 2 (1914) 362; LECOMTE, Not. Syst. 3 (1914) 72, 174; Fl. Indo-China 5 (1915) 193; in Sarg., Pl. Wilson. 3 (1916) 316; MERR., Journ. Str. Br. Roy. As. Soc. Special No. 1921 (1921) 237; RIDL., Fl. Mal. Pen. 3 (1924) 154; MERR., Philip. Journ. Sci. 29 (1926) 366.

Taxillus estipitatus DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 355; 11 (1931) 445; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 124.

Omnes partes juveniles tomento tenui sed denso, in ramulis foliisque mox deciduo, in inflorescentiis floribusque diu permanente denique deciduo. Ramuli graciles ramosissimi, teretes, nodis incrassatis, internodiis folia adulta ferentibus plerumque 1.5 ad 3.5 mm longis, 0.5 ad 2 mm crassis. Folia opposita vel rarius subopposita; petiolus subtus rotundatus, supra a basi ad laminam sensim applanatus, tota longitudine leviter sulcatus; lamina rotundato-elliptica vel elliptica, saepe paulum ovata, rarius

obovata, 1.5 ad 5 cm longa, 1 ad 3 cm lata, basi rotundata vel cuneata, rarius in petiolum contracta, apice obtusa vel rotundata, tenuiter coriacea vel chartacea, utraque facie opaca vel superiore sublucida, facie superiore nervis omnibus distinctis, inferiore costa valde nervis ceteris minus prominentibus. Inflorescentiae singulae in axillis foliorum, rarius gregatim in nodis defoliatis, plerumque 2-flori rarius 3-flori; pedunculus 2 ad 4 mm longus, 0.25 ad 0.5 mm crassus, teres, apice paulum incrassatus; pedicelli 4 ad 9 mm longi, pedunculo aequicrassi vel apicem versus paulo crassiores, teretes; bracteae rotundato-ovatae, 0.5 ad 1 mm longae, obtusae, crassiusculae. Calicis tubus globoso-ellipsoides vel subobovatus, c. 1.75 mm longus, 1.5 mm latus, superficie iam tempore florendi verrucosa; limbus brevissimus minus quam 0.25 mm longus, erectus vel subinfundibuliformis, integer, a tubo valde diversus. Corolla 16 ad 21 mm longa, statu alabastri adulti supra basin rotundatam 2 ad 2.5 mm lata, deinde usque ad 3 ad 4 mm ab apice sensim ad 0.75 ad 1 mm attenuata, denique in clavam obovatam c. 1.75 mm crassam apice rotundatam incrassata, postea partita in lacinias 4, incisionibus 3 usque ad 3 quartas vel 2 quintas longitudinis percurrentibus, quarta profundiore nonnunquam fere ad basin percurrente, laciniis spathuliformis, 2 ad 2.5 mm longus, c. 0.8 mm latis, crassiusculis, obtusis. Filamenti pars libera 0.25 ad 0.5 mm longa; anthera oblonga, 1 ad 2 mm longa, apice obtusissima, loculis 4 indistincte locellatis. Stylus corollae aequilongus, apicem versus paulum attenuatus, sulcis 4; stigma subglobosum, styli apice c. sesquiplo crassius. Fructus ellipsoides, basi apiceque rotundatus, ad 8 mm longus, 4.5 mm crassus, tota superficie verrucosa (omnino maturus forte levis?) calicis limbo erecto paulum aucto coronatus.

Philippines, without exact locality, *Cuming 1970* (M, wholly, L, partly). LUZON, Tayabas Province, Malbog, 80 m altitude, *F. B. 30695 Oro* (M, NY); Lucban, *Elmer 7513* (B, L) and *7911* (M, NY, B, L): Bataan Province, Bataan, *Comisión de la flora forestal de Filipinas 516* (L): Rizal Province, Mount Kanumay, *Ramos 1020* (M, U, Br, BM); Mount Lumutan, 600 m altitude, *Bur. Sci. 42166 Ramos* (M, S); Bosoboso, *Merrill 1826* (M): Laguna Province, Lilio, *De Leon 4073* (M); Capugan, *Bur. Sci. 13517 Ramos* (M, B, L, Br); trail, Paete to San Antonio, *Bur. Sci. 16526 Ramos* (M, G, Br); Paete, *Bur. Sci. 22892 McGregor* (M, B, S, L); Mount Maquiling, *Foxworthy s. n.* (M); Los Baños, *Elmer 17546* (M, UC, B, L, U). SIBUYAN,

Capiz Province, Mount Giting-giting, Magallanes, *Elmer 12125* (M, NY, B, L, U). NEGROS, Oriental Negros Province, Cuernos Mountains, Dumaguete, *Elmer 10105* (NY, B, L). PALAWAN, Taytay, sea level, *Merrill 9396* (M, NY, B, S, L).

XIII. Genus PHRYGILANTHUS Eichler

Phrygilanthus EICHL., in Mart., Fl. Brasil. 5 2 (1868) 22, 45; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 178; VAN TIEGH., Bull. Soc. Bot. Fr. 41 (1894) 143; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 133; MERR., Philip. Journ. Sci. § C 4 (1909) 151; KRAUSE, in Engl. Jahrb. 57 (1922) 491; BLAKELY, Proc. Linn. Soc. N. S. Wales 47 (1922) 206; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 292, 348; 11 (1931) 446; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 99.

Müllerina, Hookerella, Furcilla VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 25, 26, 85, 87, 162, 163, 166, 175, 179.

Inflorescentia cymosa, simplex vel composita, vel racemus cymarum, floribus singula bractea suffultis. Corolla choripetala. Antherae dorsifixae.

The genus *Phrygilanthus* is chiefly American; there is a small number of species in eastern Australia, one in New Guinea, and one in the Philippines. Probably the Philippine and the New Guinea species are identical.

1. PHRYGILANTHUS OBTUSIFOLIUS Merrill.

Phrygilanthus obtusifolius MERR., Philip. Journ. Sci. 1 Suppl. (1906) 189; § C 4 (1909) 151; Enum. Philip. Fl. Pl. 2 (1923) 112; DANS., Bull. Jard. Bot. Buitenzorg III 10 (1929) 349; Verh. Kon. Akad. Wetensch. Amsterdam afd. Natuurk. § 2 29 6 (1933) 99.

Omnis glabra. Ramuli ramosissimi, teretes, nodis incrassatis, internodiis valde juvenilibus apicem versus applanatis, folia adulta ferentibus 1 ad 3 mm longis, 0.75 ad 1.25 mm crassis. Folia opposita, cuneato-obovata, 2.5 ad 7 cm longa, 0.8 ad 2.5 cm lata, basi cuneatim angustata et in partem petioliformen 2 ad 6 mm longam attenuata, crassiuscule coriacea, faciebus subsimilibus, utraque facie opaca vel nonnihil lucida, flabellinervis, costa et 2 paribus nervorum lateralium longitudinalibus prope basin visibilibus, venis omnino invisibilibus. Inflorescentiae 2-florae, plerumque singulae in axillis foliorum (etiam terminalium), et gregatim in nodis defoliatis, nonnunquam etiam inflorescentia terminalis floribus brevissime pedicellatis; pedunculus teres, basi apiceque paulum incrassatus, 2 ad 10 mm longus, c. 0.5 mm crassus; pedicelli teretes, 0 ad 3 mm vel post anthesin

ad 4 mm longi, pedunculo fere aequicrassi; bracteae suborbiculares, 0.5 mm longae. Calicis tubus campanulatus vel nonnihil urceolatus, c. 1.5 mm longus bene 1 m latus; limbus infundibuliformis, integer, c. 0.4 mm longus. Corolla statu alabastri adulti clavata, 5-angula (raro 4-angula), c. 11 mm longa, supra basin 2 mm latam coniformiter angustata in partem mediam c. 0.75 mm latam, in 3 superioribus ellipsoides, c. 1.25 mm crassa, apice obtusissima; postea dehiscens in petala 5 (nonnunquam 4) parte inferiore facie interiore carina mediana, supra eam partem dente obtuso in constrictionem styli quadrante, deinde (in parte angustissima) filamento adnato prominente usque ad 4 mm supra basin, deinde concava spathulata, apice obtusa, supra insertionem filamenti recurvata apice incurvata. Filamenti pars libera c. 4 mm longa, apice acuta; anthera c. 1.5 mm longa, 0.75 mm lata, basi apiceque obtusissima, loculis 4 continuis, medio vel paulum sub medio affixa. Stylus acute 5- (raro 4-) angulus, lateribus cavis, a basi usque ad mediam longitudinem sensim attenuatus, c. 2 mm supra basin magis minusve (nonnunquam valde) constrictus, ad c. 2.5 mm a stigmate iterum (sed minus) constrictus; stigma styli apice paulo crassius, obtusissimum. Fructus globoso-ellipsoides vel paulum obovoides, levis, ad 6 mm longus ad 5 mm crassus, calicis limbo patente coronatus, endocarpio sub semine in cupulam lignosam indurato.

LUZON, Ilocos Norte Province, Burgos, low altitude, *Bur. Sci. 32837 Ramos* (M, NY, S): Bataan Province, Mount Mariveles, Lamao River, *Whitford 1081* (NY, Be); 600 m altitude, *Whitford 134* (M, NY, B, S); 650 m altitude, *F. B. 1813 Borden* (M, type, NY, B, S, Be, cotypes), fruit dark yellow or bright red; Lamao Forest Reserve, *F. B. 6286 Curran* (M, NY, Be), flower greenish white or flushed lemon yellow, slightly fragrant. MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, *Elmer 14192* (M, NY, UC, B, U).

XIV. Genus GINALLOA Korthals

Ginalloa KORTH., Verh. Bat. Genootsch. 17 (1839) 260; ENDL., Gen. Pl. (1840) 1415; WALP., Repert. 2 (1843) 439; MIQ., Fl. Ind. Bat. 1 1 (1856) 807; BAILL., Adansonia 3 (1862) 106; OLIV., Journ. Linn. Soc. Bot. 7 (1864) 92; KURZ, For. Fl. Burma 2 (1877) 326; BENTH. and HOOK. F., Gen. Pl. 3 (1880) 215; HOOK. F., Fl. Br. Ind. 5 (1886) 228; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 192; TRIMEN, Handb. Fl. Ceyl. 3 (1895) 473; VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 646; 43 (1896) 162; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 139; BOERL., Handl. Pl. Ned. Ind. 3 1 (1900) 156, 160; MERR., Philip. Journ. Sci. § C 4 (1909) 130, 153; KOORD., Exkursionsfl. 2 (1912) 166; GAMBLE,

Journ. As. Soc. Beng. 75 (1914) 383; LECOMTE, Fl. Indo-China 5 (1915) (1915) 206; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112; RIDL., Fl. Mal. Pen. 3 (1924) 163; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 448.

Inflorescentiae axillares spicatae, articulatae, bracteis decussatis, principio florem singulum femineum, postea etiam flores 2 masculos laterales, denique nonnunquam flores additionales ferentibus. Flos masculus lacinnis 3, raro 4, staminibusque aequo numero superpositis, filamento brevi antheraque 2-loculari rimis longitudinalibus dehiscente. Flos femineus tubo ellipsoidei ovarium continente, laciniis 3, raro 4 vel 5, stigmateque coniformi.

To the characters of the generative parts the following peculiarities of the vegetative parts may be added:

The long stems keep their herbaceous appearance, and at length they become woody, without losing their green color, and without forming cork and lenticels; they are slender and strongly dichotomous, here and there tri- or tetrachotomous, as in the axils of the pair of leaves preceding a terminal inflorescence there are usually formed 2, more rarely 3 or 4, lateral branches. The leaves are opposite, the successive pairs of normal leaves often alternating with pairs of strongly reduced scalelike leaves, seemingly forming indistinct rings around the internodes, and making the normal leaves superposed.

The genus *Ginalloa* is spread in Burma, Siam, Indo-China, Ceylon, the Andaman Islands, the Philippines, and the western and central parts of the Malay Archipelago. In the Philippines it is found from northern Luzon to southern Mindanao. I have united the species described for the Philippines as one species, elevated one variety to the rank of species, and named one new species.

Key to the Philippine species of Ginalloa.

1. Leaves linear-lanceolate, not more than 7 mm, usually 2 to 3 mm, broad. 2. *G. angustifolia.*
   Leaves broader ..... 2.
2. Leaves ovate, obtuse-acuminate to narrowly lanceolate, obtuse; rudimentary leaves usually present, placed 5 to 60 mm above the normal ones, the internode below the rudimentary leaves not thickened and never having the appearance of a sheath..... 1. *G. Arnottiana.*
   Leaves ovate, obtuse or rotundate at the apex; rudimentary leaves always present, 2 to 3 mm above the normal ones, the internode below them thickened, having the appearance of a sheath around the base of the normal internode..... 3. *G. ovata.*

1. GINALLOA ARNOTTIANA Korthals.

Ginalloa Arnottiana KORTH., Verh. Bat. Genootsch. 17 (1839) 260; WALP., Repert. 2 (1843) 439; MIQ., Fl. Ind. Bat. 1 1 (1856) 807; OLIV., Journ. Linn. Soc. Bot. 7 (1864) 103; BENTH. and HOOK. F., Gen. Pl. 3 (1880) 215; VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 646; 43 (1896) 162; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 139; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 167, 171; MERR., Journ. Str. Br. Roy. As. Soc. Special No. 1921 (1921) 240; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 449.

Viscum spicatum KORTH., Verh. Batav. Genootsch. 17 (1839) 231–235.

Viscum Cumingianum PRESL, Epim. Bot. (1851) 255; WALP., Annal. 2 (1852) 729; BENTH. and HOOK. F., Gen. Pl. 3 (1880) 215.

Ginalloa Cumingiana FER.-VILL., Nov. App. (1880) 185; VIDAL, Pl. Cuming. Philip. (1885) 77, 141; Rev. Pl. Vasc. Filip. (1886) 232; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 192; VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 646; 43 (1896) 162; MERR., Philip. Journ. Sci. § C 4 (1909) 153 excl. var. *angustifolia;* MERR. and MERRITT, Philip. Journ. Sci. § C 5 (1910) 345; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112 excl. var. *angustifolia.*

Ginalloa Zollingeri VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 647; 43 (1896) 162; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 139; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 167, 171; KOORD., Exkursionsfl. Java 2 (1912) 166.

Ginalloa Beccariana VAN TIEGH., Bull. Soc. Bot. Fr. 42 (1895) 647; 43 (1896) 162; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 139; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 167, 171; MERR., Journ. Str. Br. Roy. As. Soc. Special No. 1921 (1921) 240.

Ginalloa lanceolata C. B. ROB., Philip. Journ. Sci. § C 6 (1911) 200; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112.

Ginalloa platyphylla MERR., Philip. Journ. Sci. 29 (1926) 477.

Omnis glabra. Internodia teretia, postea nodis folia evoluta ferentibus magis incrassatis; caulis partes inter foliorum paria evoluta 2 ad 10 cm longa, 0.75 ad 2.5 mm crassa; internodia sub foliis rudimentariis ("vaginae") 0.5 ad 6 cm longa. Folia normalia plerumque cum rudimentariis alternantia, plerumque lanceolata vel anguste lanceolata, rarius ovato-lanceolata vel ovata, sessilia basi valde angustata vel petiolo ad 5 mm longo, 5 ad 12 cm longa, 0.7 ad 5 cm lata, apicem obtusum versus magis vel minus (saepe valde) acuminata vel etiam in acumen longum protracta, crassiuscula subcoriacea, faciebus vix diversis, opacis subcurvinervia, costa fere usque ad apicem visibili, nervis lateralibus 2 curvatis vix brevioribus et in foliis latis 2 alteris brevioribus et tenuioribus, venisque conectivis facie inferiore paulo distinctioribus quam facie superiore. Inflorescentiae ad 10 cm

longae, basi internodiis ad 10 mm longis, c. 0.3 mm crassis apice paulum applanatis, versus spicae apicem gradatim brevioribus; paria bractearum connatarum 1.5 ad 2 mm diametro, juventute distincte angustiora, postea aequilata, triadibus florum decussatis vel superpositis, bracteis rudimentariis rarissime visibilibus. Flos masculus statu alabastri globosus c. 0.5 mm longus, postea paulum apertus, mox deciduus; flos femineus c. 1 ad 1.5 mm longus, tubo ellipsoide tres quartas longitudinis occupante laciniisque rotundato-triangulis. Fructus ellipsoides, levis, ad 10 mm longus, perigonii laciniis coronatus.

The above description has been made after Philippine material only, which cannot be separated from *G. Arnottiana,* widely spread in the central part of the Malay Archipelago and of which *G. Cumingiana* is a narrow-leaved type and *G. platyphylla* a broad-leaved type. Of *G. lanceolata* I have seen neither the type (*Bur. Sci. 10429 McGregor*), from Polillo, nor the second specimen cited by Merrill in his Enumeration (*Elmer 15690*). I have seen *Elmer 15696,* from Bulusan Volcano, Sorsogon, Luzon, strikingly agreeing with the original description, but neither this specimen, nor the other specimens named *G. lanceolata* by Merrill, nor the description, allow me to keep *G. lanceolata* separate from the polymorphic *G. Arnottiana.* Merrill's variety *angustifolia,* however, is different and can be taken as a separate species.

Perhaps the name *Viscum spicatum* has not only page priority over *Ginalloa Arnottiana,* but so long as I do not know with certainty that it was published earlier than *G. Arnottiana,* I prefer to use the latter name.

On the herbarium labels the fruit is indicated as red.

Philippines, without exact locality, *Cuming 1968* (L, Br), probably type number of *Ginalloa Cumingiana* Presl. LUZON, Cagayan Province, Maunan, *Bur. Sci. 7829 Ramos* (M); Mount Bawa, 360 m altitude, *Bur. Sci. 78451 Edaño* (M): Isabela Province, Santiago, *Clemens 18028* (M, UC, NY); San Mariano, 300 m altitude, *Bur. Sci. 46923 Ramos and Edaño* (UC, NY): Apayao Subprovince, Kabugao, *Bur. Sci. 28258 Fénix* (M, NY, B, L): Nueva Vizcaya Province, Dupax, *Bur. Sci. 11329 McGregor* (M, S): Rizal Province, Mount Susung-Dalaga, 100 m altitude, *Bur. Sci. 29376 Ramos and Edaño* (M, B, L): Tayabas Province, Mount Binuang, 34 m altitude, *Bur. Sci. s. n. Ramos and Edaño* (M): Sorsogon Province, Mount Bulusan, Irosin, *Elmer 15696* (M). CATANDUANES, Masanganbahi stream, 150 m altitude,

Bur. Sci. 75644 Ramos and Edaño (M, NY, S, U). BOHOL, Bilar, 600 m altitude, *Bur. Sci. 43226 Ramos* (UC), type of *Ginalloa platyphylla* Merr.; Sevilla, 300 m altitude, *Bur. Sci. 43332 Ramos* (M, UC, B). DINAGAT, iron deposit, low altitude, *Bur. Sci. 83807 Ramos and Convocar* (M). MINDANAO, Surigao Province, Placer, 150 m altitude, *Wenzel 3038* (M, UC, B): Agusan Province, Mount Urdaneta, Cabadbaran, *Elmer 14179* (M, NY, B, L).

Further distribution: Borneo, Celebes, Salajar, Soelabesi, and Lombok.

2. GINALLOA ANGUSTIFOLIA (Merrill) Danser. Plate 2, fig. 1.

Ginalloa cumingiana var. *angustifolia* MERR., Philip. Journ. Sci. § C 4 (1909) 153; Enum. Philip. Fl. Pl. 2 (1923) 112.

Omnis glabra. Ramuli gracillimi et tenuissimi, teretes, statu adulto nodis folia normalia ferentibus leviter applanatis, folia adulta ferentes 0.3 ad 1.25 mm crassi, partes inter paria foliorum normalium 1.5 ad 5 cm longae, internodia sub foliis rudimentariis ("vaginae") 1 ad 30 mm longa. Folia opposita, decussata; normalia saepe cum paribus rudimentariis alternantia, superposita, lineari-lanceolata, sessilia vel subpetiolata, 3 ad 7 cm longa, plerumque 2 ad 3, rarius 1 ad 5, rarissime ad 7 mm lata, basin versus sensim attenuata, apicem obtusum vel rotundatum versus minus attenuata, crasse vel tenuiter coriacea, faciebus similibus, opacis, costa nervisque lateralibus 2 usque ad apicem fere parallelis, raro nervis 2 alteris brevioribus tenuioribusque, venis connectivis plerumque invisibilibus. Inflorescentiae plerumque 1 ad 5 cm longae, internodiis c. 2 ad 4 mm longis, apicem versus paulum applanatis et dilatatis, paribus bractearum connatarum 1 ad 1.5 mm diametro, juventute angustioribus, postea aequilatis. Flos masculus globosus, vix 0.5 mm longus, flos femineus ad 1 mm longus, tubo ellipsoide duas tertias longitudinis occupante, laciniis conniventibus. Fructus ellipsoides, peringonii lacinis coronatus, ad 6 mm longus, 3 mm crassus.

The differences between *G. Arnottiana* and *G. angustifolia* are not large, but they are as large as those between several other *Ginalloa* species, and intermediate forms are wanting among the rather abundant herbarium specimens.

Ginalloa angustifolia is spread in northern and central Luzon and in Negros, and has been collected from 35 to 1,300 m altitude. The fruit is indicated as red on the herbarium labels.

LUZON, Ilocos Norte Province, Burgos, 35 m altitude, *Bur. Sci. 27264 Ramos* (M) : Isabela Province, Mount Moises, *Clemens 16708* (M, UC, NY) : Benguet Subprovince, Baguio, *Elmer 8941* (NY, B, L) ; Mount Pulog, *F. B. 16242 Curran, Merritt, and Zschokke* (NY), first number cited for *G. cumingiana* var. *angustifolia:* Nueva Vizcaya Province, Dupax, *Bur. Sci. 11342 McGregor* (M, G, Br) : Rizal Province, Montalban, *Loher 13268* (M, UC) : Laguna Province, Dahican, *Ramos 1150* (M, U, Br) ; Pabontoc River, Paete, 310 m altitude, *F. B. 26780 Mabesa* (M). NEGROS, *F. B. 20680 Tamesis* (M) ; Canlaon Volcano, *Bur. Sci. 1139 Banks* (M), second number cited for *G. cumingiana* var. *angustifolia,* type of *Ginalloa angustifolia;* Mount Marapara, 1,200 to 1,300 m altitude, *F. B. 13627 Curran and Foxworthy* (M) ; Gantanan, 300 m altitude, *F. B. 20886 Hinoban* (M).

3. GINALLOA OVATA Danser sp. nov. Plate 1, fig. 8.

Omnis glabra. Ramuli ramosissimi, teretes, ad nodos folia normalia ferentes incrassatis, folia adulta ferentes 1 ad 2 mm crassi, partes interparia foliorum normalium 2 ad 7 cm longae, internodia sub foliis rudimentariis ("vaginae") 2 ad 3 mm longis, paulo crassiora quam internodia supra folia rudimentaria. Folia opposita, decussata, normalia semper cum rudimentariis alternantia, superposita, sessilia vel subpetiolata, ovata, saepe paulum obliqua, 4 ad 6 cm longa, 1.5 ad 3.5 cm lata, sub basi rotundata contracta, apice obtusa vel rotundata, crassa, faciebus similibus, opacissimis, curvinervibus, costa usque fere ad apicem visibili, nervis lateralibus curvatis 4, quorum interiores usque fere ad apicem, exteriores ad dimidiam folii longitudinem percurrentes, venis ceteris invisibilibus. Inflorescentiae plerumque 2 ad 4 cm longae, basi internodiis 2 ad 3 mm longis, apicem versus brevioribus; bractearum paria connata 1.5 ad 2 mm diametro. Flos masculus subglobosus, c. 0.5 mm longus. Flos femineus 1 ad 1.5 mm longus, tubo duas tertias longitudinis occupante, laciniis conniventibus. Fructus ignotus.

Ginalloa ovata shows no large differences from *G. Arnottiana,* but the differences are as distinct as those between many other species, and the materials from the two localities are strikingly similar.

LUZON, Tayabas Province, Tanatakutan, 400 m altitude, *F. B. 30844 Oro* (M, type, NY, S, cotypes) : Sorsogon Province, Mount Bulusan, Irosin, *Elmer 161139* (B).

XV. Genus KORTHALSELLA Van Tieghem

Korthalsella VAN TIEGH., Bull. Soc. Bot. Fr. 43 (1896) 86, 163; ENGL., in Engl. and Pr., Nat. Pfl. Fam. Nachtr. (1) zu 2–4 (1897) 138; BOERL., Handl. Fl. Ned. Ind. 3 1 (1900) 171; GAMBLE, Journ. As. Soc. Beng. 75 2 (1914) 384; MERR., Bot. Mag. Tokyo 30 (1916) 68; HAYATA, Bot. Mag. Tokyo 30 (1916) 69; LECOMTE, Bull. Mus. Hist. Nat. Paris 22 (1916) 263; RIDL., Fl. Mal. Pen. 3 (1924) 163; GAMBLE, Fl. Madras 7 (1925) 1256; BLAKELEY, Proc. Linn. Soc. N. S. Wales 53 (1928) 31; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 452.

Bifaria VAN TIEGH., Bull. Soc. Bot. Fr. 43 (1896) 163, 164; MERR., Enum. Philip. Fl. Pl. 2 (1923) 113.

Heterixia VAN TIEGH., Bull. Soc. Bot. Fr. 43 (1896) 163, 177.

Pseudixus HAYATA, Ic. Pl. Formos. 5 (1915) 187; Bot. Mag. Tokyo 29 (1915) 31; 30 (1916) 69.

Suffrutices, foliis valde reductis. Flores principio singuli in axillis, postea floribus adventivis collateralibus et serialibus acuti, bracteis destituti. Flos masculus laciniis 3, staminibus 3 antheris cohaerentibus bilocularibus, latere interiore rimis 2 dehiscentibus; flos femineus tubo ovarium continente, laciniis 3, stigmate brevi sessili.

The genus *Korthalsella* is spread in southeastern Asia from the Himalayas to Japan, the Philippines, the Malay Peninsula, and Java; also in Australia and the archipelagoes east of it, the islands in the Indian Ocean, Abyssinia, and South Africa. In the Philippines it is represented by one species only, which has been found as a parasite on trees on high mountain tops in Luzon and Negros, in the same way as in the Malay Peninsula and Java.

1. KORTHALSELLA OPUNTIA (Thunberg) Merrill.

Viscum opuntia THUNB., Fl. Jap. (1784) 64; MERR., Philip. Journ. Sci. § C 4 (1909) 152.

Viscum japonicum THUNB., Trans. Linn. Soc. Lond. 2 (1794) 329.

Bifaria japonica VAN TIEGH., Bull. Soc. Bot. Fr. 43 (1896) 173.

Korthalsella japonica ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 138.

Pseudixus japonicus HAYATA, Ic. Pl. Formos. 5 (1915) 188; Bot. Mag. Tokyo 29 (1915) 31; 30 (1916) 68.

Korthalsella opuntia MERR., Bot. Mag. Tokyo 30 (1916) 68; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 453, ic. 25*b*; VAN STEENIS, Trop. Nat. 22 (1933) 112 cum ic.

Korthalsella moniliformis LEC., Bull. Mus. Hist. Nat. Paris 22 (1916) 265.

Bifaria opuntia MERR., Enum. Philip. Fl. Pl. 2 (1923) 113; GROFF and DING, Lingn. Agr. Rev. 1 (1923) 76.

For a more extensive list of literature cfr. Bull. Jard. Bot. Buitenzorg III 11: 453.

Erecta, ramosissima, ad 12 cm alta, glabra, pilis inter flores positis exceptis. Internodia valde applanata, applanatione non alternantia, utraque facie nervis prominentibus plerumque 1 vel 3, rarius 0 vel 5, circuitu obovata ad lanceolato-obovata, apice limbo brevi, supra latera plana lobum brevem latumque obtusum, sub axillis dentem brevem erectum formante, inferiora angusta, deinde majora et latiora, apices ramulorum versus minora et pro longitudine latiora, maxima ad 25 mm longa 10 mm lata. Flores numerosi, in axillis positi, vix 0.5 mm longi. Fructus piriformis, ad 1.5 mm longus.

LUZON, Benguet Subprovince, *Loher 4475* (M); Pauai, 2,100 m altitude, *Bur. Sci. 8403 McGregor* (M); Mount Pulog, 2,460 m altitude, *F. B. 16074 Curran, Merritt, and Zschokke* (M, Be); 2,400 m altitude, on *Amyema verticillata, Bur. Sci. 44934 Ramos and Edaño* (UC): Zambales Province, Mount Tapulao, exposed mountain top over 2,000 m altitude, *F. B. 8080 Curran and Merritt* (M). NEGROS, Canlaon Volcano, *Merrill 7030* (M, B, L, Be).

XVI. Genus NOTOTHIXOS Oliver

Notothixos OLIVER, Journ. Linn. Soc. Bot. 7 (1864) 92, 103; BENTH., Fl. Austr. 3 (1866) 396; BENTH. and HOOK. F., Gen. Pl. 3 (1880) 214; BAILEY, Syn. Queensl. Fl. (1883) 452; HOOK. F., Fl. Br. Ind. 5 (1886) 227; ENGL., in Engl. and Pr., Nat. Pfl. fam. 3 1 (1889) 192; TRIMEN, Handl. Fl. Ceyl. 3 (1895) 473; VAN TIEGH., Bull. Soc. Bot. Fr. 43 (1896) 186; ENGL., in Engl. and Pr., Nat. Pfl. fam. Nachtr. (1) zu 2–4 (1897) 139; BOERL., Fl. Ned. Ind. 3 1 (1900) 156, 161, 167, 171; MERR., Philip. Journ. Sci. § C 4 (1909) 130, 152; GAMBLE, Journ. As. Soc. Beng. 75 2 (1914) 390; KRAUSE, in Engl., Jahrb. 57 (1922) 492; MERR., Enum. Philip. Fl. Pl. 2 (1923) 112; RIDL., Fl. Mal. Pen. 3 (1924) 165; BLAKELEY, Proc. Linn. Soc. N. S. Wales 53 (1928) 38; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 456.

Inflorescentia spicata vel racemosa vel paniculata, composita e cymis 3-floris vel floribus collateralibus auctis (floribus ad 9), vel cymae singulae axillares. Flos masculus laciniis 4, staminibus aequo numero superpositis, filamento brevi antheraque horizontaliter locellata, singulis locis singulis poriis dehiscentibus. Flos femineus tubo ellipsoide, laciniis 4 erectis breve triangularibus, stylo papilli vel coniformi.

To the characters enumerated above, the following taken from the vegetative parts may be added: The species of this genus are small, strongly branched shrubs; all young parts are covered with a dense tomentum of stellate hairs. Normal leaves are always present and opposite, but are often alternating with one

more pair of scalelike leaves, and in that case they seem often to be superposed.

The genus *Notothixos* is spread in the eastern part of the Old World Tropics, from Ceylon to the Philippines and to Australia. In the Philippines it is found from central Luzon to Mindanao.

Key to the Philippine species of Notothixos.

1. Cymes 5- to 9-flowered, peduncled, united to a paniculate raceme. 3. *N. leiophyllus.*
   Cymes usually 3-flowered, rarely 5-flowered, decussately arranged in spikes ..... 2.
2. Leaves usually elliptic-oblong; spikes up to 1 cm long.... 1. *N. Curranii.*
   Leaves roundish-ovate; spikes 2 to 4 cm long..... 2. *N. sulfureus.*

1. NOTOTHIXOS CURRANII Merrill.

Notothixos curranii MERR., Philip. Journ. Sci. § C 4 (1909) 152; Enum. Philip. Fl. Pl. 2 (1923) 113.

Omnes partes juveniles tomento denso primum sulfureo postea dilute ochraceo vestitae; caules glabrescentes; folia facie superiore mox glabrescentia, inferiore tomento tenuescente canescente. Caules graciles, ramosissimi, di- vel trichotomi, internodiis teretibus nodis paulum applanatis et dilatatis, folia adulta ferentibus plerumque 1 ad 3.5 cm longis, 0.75 ad 1 mm crassis. Folia opposita; petiolus ad 5 mm longus 0.5 mm crassus, subtus rotundatus supra canaliculatus, difficile a lamina distinguendus; lamina elliptico-oblonga vel ovato-oblonga, plerumque 1.5 ad 4 cm longa, 0.6 ad 2 cm lata, sub basi cuneata in petiolum contracta, apicem obtusum versus cuneata, tenuiter coriacea, supra sublucida, curvinervis, costa nervisque lateralibus 2 usque fere ad apicem percurrentibus, nonnunquam etiam nervis lateralibus 2 brevioribus tenuioribus, venis connectivis partim visibilibus. Inflorescentiae spicae terminales triadum decussatarum, ad 1 cm longae, internodiis 2 ad 3 mm longis c. 0.75 mm crassis, bracteis acute semi-infundibuliformibus, c. 0.75 mm longis. Flores feminei c. 1.5 mm longi, tubo breve ellipsoide c. 1 mm longo, laciniis 4 triangularibus obtusis vix 0.5 mm longis. Fructus ellipsoides, apice basique nonnihil attenuatus, perigonii laciniis permanentibus paulum auctis coronatus, maxime 4 mm longus 3 mm crassus; semen ovale, complanatum, c. 4 mm longum, 3 mm latum, 1 mm crassum.

Notothixos Curranii is closely allied to *N. spicatus* from New Guinea and Java, but has not the golden-yellow indumentum of that species and shows several other small differences.

LUZON, Bataan Province, Mount Limay, *F. B. 12402 Merritt and Curran* (M, type Ny, Be, cotypes of *Notothixos Curranii* Merr.) : Rizal Province, Montalban, *Loher 6735* (M, Be) ; Mount Lumutan, *Bur. Sci. 29662 Ramos and Edaño* (B). SIBUYAN, Capiz Province, Mount Giting-giting, Magallanes, *Elmer 12467* (M, NY, B, L, U). MINDANAO, Agusan Province, Mount Urdaneta, Cabadbaran, *Elmer 14071* (M, UC, NY, L, U, Be).

2. NOTOTHIXOS SULFUREUS Merrill.

Notothixos sulphureus MERR., Philip. Journ. Sci. § C 4 (1909) 152; Enum. Philip. Fl. Pl. 2 (1923) 113.

Omnes partes juveniles tomento denso sulfureo vestitae; caules mox glabri, folia facie superiore mox glabrescente inferiore tomento tenuescente paulum canescente. Caules graciles, ramosissimi, di- vel trichotomi, internodiis teretibus nodis paulum dilatatis et applanatis, folia adulta ferentibus plerumque 2.5 ad 5 cm longis 1 ad 1.5 mm crassis. Folia opposita; petiolus 3 ad 6 mm longus, c. 0.75 mm latus, subtus rotundatus supra canaliculatus; lamina ovata, sub basi rotundata abrupte in petiolum contracta, apice rotundata, plerumque 2.5 ad 5 cm longa, 2 ad 3.5 cm lata, tenuiter coriacea, supra opaca, curvinervis costa nervisque 2 lateralibus usque fere ad apicem percurrentibus, nervis 2 exterioribus dimidiam folii longitudinem attingentibus, venis connectivis partim vissibilibus. Inflorescentiae spicae terminales triadum decussatarum, 2 ad 4 cm longae, internodiis 2 ad 4 mm longis 0.3 ad 0.5 mm crassis, bracteis semi-infundibuliformibus, acutis, c. 1 mm longis. Flos masculus globosus, bene 0.5 mm longus; flos femineus c. 1.5 mm longus, tubo breve ellipsoide c. 1 mm longo, laciniisque 4 erectis triangulis vix 0.5 longis. Fructus juvenilis anguste ellipsoides, apice basique acutus, perigonii laciniis permanentibus paulum acutis coronatus, maturus ignotus.

Notothixos sulfureus is closely allied to *N. Curranii*, and further material is needed to determine whether or not these two are separate species. *Notothixos sulfureus* is the larger and more robust in all parts, and its longer spikes are especially notable.

MINDANAO, Zamboanga Province, *F. B. 13773 Foxworthy, Demesa, and Villamil* (L, Be) ; Banga, *F. B. 9132 Whitford* (M, type of *Notothixos sulphureus* Merr.).

Further distribution: Borneo.

3. NOTOTHIXOS LEIOPHYLLUS Schumann.

Notothixos leiophyllus SCHUM., in Schum. and Lauterb., Nachtr. (1905) 260; KRAUSE, in Engl., Jahrb. 57 (1922) 494; BLAKELY, Proc. Roy. Soc. Queensl. 34 (1922) 63; MOORE, Journ. Bot. 61 (1923) 44; BLAKELY, Proc. Linn. Soc. N. S. Wales 53 (1928) 41; WHITE, Journ. Arnold Arbor. 10 (1929) 210; (*lioph.*) DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931); WHITE, Contr. Arn. Arb. 4 (1933) 25.

Notothixos philippinense ELMER, Leafl. Philip. Bot. 2 (1908) 471; (*-sis*) MERR., Philip. Journ. Sci. § C 4 (1909) 153; Enum. Philip. Fl. Pl. 2 (1923) 112.

Omnes partes juveniles tomento denso aureo vestitae, caules mox glabri, folia facie superiore mox glabrescentia, facie inferiore tomento diu permanente, inflorescentiis tomento floccoso permanente. Caules graciles tenuesque, ramosissimi plerumque dichotomi; internodiis teretibus, folia adulta ferentibus plerumque 1.5 ad 10 cm longis, 1 ad 2.5 mm crassis, nodis incrassatis paulum dilatatis. Folia opposita, petiolus vix a lamina distinguendus, subtus rotundatus, supra leviter canaliculatus; lamina ovata, plerumque 4 ad 9 cm longa, 1.8 ad 5 cm lata, sub basi cuneata vel late rotundata in partem petioliformen abrupte contracta, apicem obtusum versus magis minusve acuminata, tenuiter coriacea, supra opaca vel sublucida, curvinervis costa nervisque lateralibus 2 ad 4, quorum interiores usque fere ad apicem, exteriores ad dimidiam folii longitudinem percurrentes. Inflorescentiae paniculatae, plerumque 1 ad 7 cm longae, axi 0.5 ad 0.75 mm crasso, ex internodiis 1 ad 12 composito; cymis pedicellatis decussatis vel in nodis inferioribus compluribus seriatim dispositis, pedicellis inferioribus ad 4 mm longis 0.5 mm crassis, magis apicem versus et in inflorescentiis minoribus brevioribus, apice semiorbiculariter dilatatis, bracteis lateralibus acutis ad 0.5 mm longis, ad 9-floris. Flos femineus oblongo-ellipsoides, tubo tres quartas longitudinis occupante, laciniisque 4 breve triangulis erectis. Flos masculus globosus vel obovatus, c. 0.75 mm longus. Fructus ellipsoides, maximus ad 5 mm longus 3 mm crassus, laciniis perigonii paulum auctis coronatus.

This description is after the Philippine specimens only.

NEGROS, Oriental Negros Province, Cuernos Mountains, Dumaguete, 300 m altitude, *Elmer 10114* (M, NY, B, L, Be, cotypes of *Notothixos philippinense* Elm.). MINDANAO, Bukidnon Province, Balambangan, Malaybalay, 766 m altitude, *F. B. 26541 Rola* (M).

Further distribution: Amboyna, New Guinea, New Pommern, and Queensland.

XVII. Genus VISCUM Linnæus

Viscum Linn., Sp. Pl. ed. 1 2 (1753) 1023; Merr., Philip. Journ. Sci. § C 4 (1909) 130, 151; Enum. Philip. Fl. Pl. 2 (1923) 113; Dans., Bull. Jard. Bot. Buitenzorg III 11 (1931) 459.
Aspidixia Van Tiegh., Bull. Soc. Bot. Fr. 43 (1896) 191.
For a more extensive list of literature cfr. Bull. Jard. Bot. Buitenzorg III 11: 459.

Inflorescentiae cymae simplices 3-florae, bracteolis 2, saepe ad florem medium reductae, nonnunquam floribus collateralibus auctae, sessiles vel pedunculatae, raro in inflorescentias majores compositae. Flos masculus tepalis 4 liberis, staminibusque aequo numero, antheris sessilibus dorso cum tepalis connatis, irregulariter multilocellatis, singulis locellis singulis poris dehiscentibus. Flos femineus tubo brevi ovarium continente, laciniis 4, stigmate sessile brevi.

The genus *Viscum* is widely spread in the Old World; most species are African, and their number decreases toward the East. In Australia only few species occur. The pretended occurrence of *Viscum articulatum* east of Australia is based upon confusion with *Korthalsella* species. In the Philippines three species are found, none of which is endemic.

Key to the Philippine species of Viscum.

1. Leafy ..... 1. *V. orientale.*
   Leafless ..... 2.
2. Internodes not or hardly flattened, not slender; fruit warty, crowned by the permanent perigone lobes ..... 3. *V. Loranthi.*
   Internodes slender, usually flattened; fruit always smooth; perigone lobes deciduous ..... 2. *V. articulatum.*

1. VISCUM ORIENTALE Willdenow.

Viscum orientale Willd., Sp. Pl. ed. 4 2 (1805) 737; Fer.-Vill., Nov. App. (1880) 184; Vidal, Pl. Cuming. Philip. (1885) 76, 77, 141; Rev. Pl. Vasc. Filip. (1886) 232; Merr., Philip. Journ. Sci. § C 4 (1909) 151; Species Blanco. (1918) 132; Enum. Philip. Fl. Pl. 2 (1923) 114; Dans., Bull. Jard. Bot. Buitenzorg III 11 (1931) 466.
Viscum Heyneanum, ovalifolium, obtusatum DC., Prodr. 4 (1830) 278, 279.
Viscum verticillatum Roxb., Fl. Ind. ed. 2 3 (1832) 764.
Viscum pamattonis, navicellatum, Roxburghianum Korth., Verh. Bat. Genoothsch. 17 (1879) 255–257.
Viscum monoicum Presl., Epim. Bot. (1849) 251 ? non DC.
For a more extensive list of literature cfr. Bull. Jard. Bot. Buitenzorg III 11: 466.

Omnis glabra. Caules graciles, ramosissimi, internodiis teretibus, saepe apice paulum applanatis, nodis semper incrassatis,

folia adulta ferentibus 1 ad 5 cm longis, 0.75 ad 2.5 mm crassis. Folia opposita, sessilia vel breve petiolata; petiolus difficile a lamina distinguendus, pauca 1 mm longus; lamina lanceolata ad elliptica vel magis minusve obovata, plerumque 4 ad 10 cm longa, 1.5 ad 3.5 cm lata, basi sensim attenuata, apice obtusa vel rotundata, rarius acutiuscula, coriacea, utrinque opaca, flabellinervis, nervis longitudinalibus plerumque 3 vel 5 distinctis, venis tenuioribus convexis. Cymae singulae in foliorum axillis primum 3-florae flore medio femineo lateralibus masculis, rarius ad florem medium reductae, postea saepe floribus adventivis auctae denique multiflorae, bracteolis 2 oppositis breve triangulis in unum naviculiforme c. 1.5 mm longum connatis. Flos masculus 0.75 ad 1 mm longus, globosus vel lateraliter compressus, tepalis 4 crassiusculis breve triangulis, antheris sessilibus dorso adnatis suborbicularibus valde applanatis; flos femineus 1.5 ad 2 mm longus, tubo cylindrico duas tertias longitudinis occupante, laciniis 4 breve 3-angulis, post deciduis. Fructus rotundato-ellipsoides, ad 5 mm longus 4 mm crassus, diu verriculosus tota maturitate levis, ochraceo vel fusco viridis, stylo permanente paulum aucto coronatus.

Philippines, without exact locality, *Cuming 1954* (M), *1948, 1950, 1961* (M, L), *2341* (L), *Loher 6734* (M). LUZON, Benguet, Subprovince, *Loher 4468* (M): Pangasinan Province, Sibtong, Villasis, *Alberto 2* (M); Mount San Isidro, 200 m altitude, *Bur. Sci. 29909 Fénix* (M, B): Nueva Vizcaya Province, Bongabon, *F. B. 8454 Curran* (M, NY, S, Be): Bataan Province, Lamao River, Mount Mariveles, 450 m altitude, *Williams 474* (NY); Lamao Forest Reserve, *F. B. 7230 Curran* (M): Rizal Province, Antipolo, *Merrill Sp. Blanco. 883* (M, NY, B, L, Be); *Bur. Sci. 10909 Ramos* (M, S): Laguna Province, Forestry Plantation, 100 m altitude, *F. B. 24906 Mabesa* (M); Mount Maquiling, Los Baños, *Elmer 17798* (M, UC, B, L, U) and *17916* (M, B, L, U): Tayabas Province, Malicbuy, *Bur. Sci. 26898 Edaño* (M); 60 m altitude, *Bur. Sci. 26919 Edaño* (M, UC, B). LUBANG, sea level, *Merrill 961* (M, NY). PALAWAN, *F. B. 3814 Curran* (M, B); Alfonso XIII, *Bur. Sci. 15529 Fénix* (M, S, Be); Addison Peak, Brooks Point, *Elmer 12700* (NY, B, L). MINDANAO, Davao Province, Mati, Bitanagan River, 150 m altitude, *Bur. Sci. 49005 Ramos and Edaño* (UC).

Further distribution: Tropical southeastern Asia, Malay Archipelago, North Australia.

2. VISCUM ARTICULATUM Burman.

Viscum articulatum Burm., Fl. Ind. (1768) 211; Fer.-Vill., Nov. App. (1880) 185; Merr., Philip. Journ. Sci. § C 4 (1909) 151; Sp. Blanco. (1918) 133; Philip. Journ. Sci. 19 (1921) 348; Enum. Philip. Fl. Pl. 2 (1923) 113; Dans., Bull. Jard. Bot. Buitenzorg III 11 (1931) 460.

Viscum compressum Poir., in Lam., Encycl. Méth. Suppl. 2 (1811) 861.

Viscum opuntioides Bl., Catal. (1823) 112 nomen; Roxb., Fl. In. ed. 2 3 (1832) 764 non Linn.

Viscum monilliforme Bl., Bijdr. 13 (1825) 667.

Viscum dichotonum D. Don, Prodr. Fl. Nep. (1825) 142.

Viscum angulatum? DC., Prodr. 4 (1830) 283; Fer.-Vill., Nov. App. (1890) 184; Merr., Philip. Journ. Sci. § C 4 (1909) 151; Sp. Blanco. (1918) 133; Philip. Journ. Sci. 15 (1919) 234; Enum. Philip. Fl. Pl. 2 (1923) 113.

Aspidixia articulata, dichototoma ? *angulata* Van Tiegh., Bull. Soc. Bot. Fr. 43 (1896) 193.

Viscum flexuosum Gamble, Kew Bull. 1913 (1913) 47.

For a more extensive list of literature cfr. Bull. Jard. Bot. Buitenzorg III 11: 460.

Omnis glabra. Caules graciles, ramosissimi, plerumque penduli, internodiis e basi tereti vel quadriangula magus minusve applanatis, raro omnino 4-angulis vel teretibus, 1 ad 5 cm longis, 0.5 ad 3 mm crassis, 1 ad 5 mm latis, applanationibus semper alternantibus, circuito linearibus ad lineari-obovatis, utrinque nervis nonnullis longitudinalibus. Folia ad squamas dentiformes reducta c. 0.5 mm longa. Cymae in axillis singulae, primum plerumque flore singulo femineo bracteolis 2 oppositis in cupulam vel naviculam connatis, sub quibus saepe bracteae decussatae diverso numero, ex axillis quarum postea saepe flores procrescunt bracteolis 2 connatis suffulti. Flos masculus primum globosus, postea paulum patens tepalis triangulis crassiusculis vix 0.25 mm longis, antheris suborbicularibus valde applanatis. Flos femineus breve ellipsoides, c. 0.5 mm longus, tubo cylindrico brevi duas tertias longitudinis occupante, laciniis perigonii breve triangulis, crassiusculis deciduis. Fructus globosus, levis, lucidus, maturitate semipellucidus, albidus, c. 3 mm diametro; semen lenticulare, marginibus obtusis, viride, embryis plerumque 1 raro 2 vel 3.

Though, in general, *Viscum articulatum* is indicated as growing on all kinds of trees, it seems to be overlooked that, as a rule, the real host is one of the coarse Loranthaceæ, such as *Dendrophthoe* or *Amyema*. Yet, now and then, *V. articulatum* grows directly on nonloranthaceous plants. Among the Phil-

ippine materials I found only *F. B. 6943* on *Casuarina*, from Baca, Zambales, Luzon, but this was such a finely branched form, that it might be a new species of *Viscum*. In the Netherlands Indies *Viscum articulatum*, besides the Loranthaceæ, is known with certainty only on *Evodia*, *Calotropis*, *Flueggea*, and *Henslowia*.

LUZON, Ilocos Norte Province, Bangui, *Bur. Sci. 7616 Ramos* (M); Burgos, *Bur. Sci. 27255 Ramos* (M); Piddig, *Bur. Sci. 43634 McGregor* (M, UC, B): Ilocos Sur Province, San Esteban, near Santa Maria, sea level, *Clemens 17854A* (UC); La Union Province, Bauang, sea level, *Elmer 5554* (M, NY, B, Be): Bontoc Subprovince, Mount Masapilid, 900 m altitude, *Bur. Sci. 37885 Ramos and Edaño* (M, Be); Lepanto Subprovince, Aluling, 1,000 m altitude, *Vanoverbergh 2194* (M); Benguet Subprovince, *F. B. 15894 Bacani* (M); Aduay, 900 m altitude, *F. B. 10923 Curran* (M, Be); Antamok, *Williams 1009* (M, NY); Mount Pulog, 1,250 m altitude, *F. B. 16243 Curran, Merritt, and Zschokke* (M, B); Baguio, *Elmer 8516* (M, NY, B, U): Cagayan Province, Malaguey, *Warburg 11706* (Be): Pangasinan Province, Alaminos, *F. B. 8347 Curran and Merritt* (M): Zambales Province, *F. B. 11051 Zschokke* (M, NY, B, Be); Bacao, *F. B. 6943 Curran* (M), directly on *Casuarina:* Bataan Province, Lamao Forest Reserve, *F. B. 7230 bis, Curran* (M): Bulacan Province, Calumpit, *Merrill, Sp. Blanco. 695* (M, NY, B, L): Rizal Province, Rio San Francisco del Monte, *Loher 4482* (M, NY, Be); *Merrill, Sp. Blanco. 792* (M, NY, B, L, Be): Laguna Province, Bay, 2.5 m altitude, *Holman 154* (M); Mount Maquiling, *Quisumbing s. n.* (UC): Tayabas Province, Umiray, *Bur. Sci. 29064 Ramos and Edaño* (M). MINDORO, Puerto Galera, 15 m altitude, *Bur. Sci. 15301 Kienholz* (NY); 10 m altitude, *Bur. Sci. 15222 Kienholz* (M, UC). LEYTE, Dagami, Panda, 60 m altitude, *Wenzel 275* (M). MINDANAO, Lanao Province, Lake Lanao, Camp Keithley, *Clemens 564* (M, Be): Davao Province, Mount Apo, Todaya, *Elmer 11963* (B, L, Be).

Further distribution: Southeastern tropical Asia, Malay Archipelago, and North Australia.

3. **VISCUM LORANTHI** Elmer.

Viscum Loranthi ELMER, Leafl. Philip. Bot. 8 (1919) 3089; MERR., Enum. Philip. Fl. Pl. 2 (1923) 113; DANS., Bull. Jard. Bot. Buitenzorg III 11 (1931) 464, ic. 27, *b*, *c*.

Caules rigidi, a basi ramosi, ad 10 cm longi, internodiis inferioribus ad 2 cm longis 4 mm crassis, teretibus, nodis incrassatis,

superioribus gradatim brevioribus, leviter decussatim applanatis. Folia nulla. Cymae ad apices ramulorum decussatae, primum 3-florae flore medio femineo lateralibus masculis, postea floribus adventivis auctae, denique multiflorae. Flos masculus c. 0.75 mm longus, tepalis ovatis convexis acutis crassiusculis, antheris applanatis orbicularibus. Flos femineus c. 1 mm longus, tubo c. duas tertias longitudinis occupante, laciniis 4 ovato-triangulis crassiusculis, stylo brevi mammiformi. Fructus maturus ignotus, immaturus verruculosus, tepalis 4 permanentibus coronatus.

The description is from the Sumatran material of the Buitenzorg Herbarium, not from the ill-preserved specimens of the type number, which, however, appear to be entirely identical. The Luzon specimens appear to grow on *Taxillus estipitatus* (not on *Scurrula*), the Sumatra specimens on *Scurrula ferruginea*.

LUZON, Laguna Province, Mount Maquiling, Los Baños, *Elmer 17777* (M, UC, B, L, U, cotypes of *Viscum loranthi* Elm.), "on *Loranthus estipitatus*" according to Elmer, *Copeland 618117* (UC) "on *Loranthus:*" Rizal Province, Mount Kanumay, on *Taxillus estipitatus, Bur. Sci. Ramos 1020,* in Herb. Brit. Museum, London.

Further distribution: Central Sumatra.

DOUBTFUL AND EXCLUDED SPECIES

Merrill[7] has listed doubtful and excluded specific names in this family; several of the names enumerated by him are only synonyms of species, in reality occurring in the Philippines, and are enumerated as such by me in the lists of synonyms. Species either doubtful or to be excluded are—

Dendrophthoe incarnata "Blume."
Loranthus bicolor Roxb.
Loranthus Blancoanus F.-Vill.
Loranthus coccineus Jack.
Loranthus formosus Blume.
Loranthus Forsterianus Schultz.
Loranthus heteranthus Wall.
Loranthus pauciflorus Blanco.
Loranthus pulcher DC.
Loranthus retusus Jack.
Loranthus Wallichianus Roxb.

[7] Philip. Journ. Sci. § C 4 (1909) 148–149; Enum. Philip. Fl. Pl. 2 (1923) 111–112.

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The species are indicated by the number of the genus (Roman) and, if there are more than one species in the genus, by that of the species (Arabic).

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Aldaba s. n.–V, 1; 19106–X, 3.

Baker 999–XI, 2.

Bernhardt s. n.–VII, 1.

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oleoides V, 1.
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ovatifolius I, 13.
pachycladus I, 16.
palawanensis I, 1.
pallens V, 1.
parasiticus XI, 1.
patulus V, 1.
pauciflorus XI, 1.
pentagonus I, 17.
pentandrus X, 1.
pentapetalus IX, 1.
philipp(in)ensis XI, 2.
polillensis VII, 14.
polycarpus IX, 1.
preslii VII, 5.
pubiflorus VII, 4.
revolutus I, 11.
rigidus X, 1.
roxburghianus XI, 1.
rufidulus XI, 1.
saccatus I, 14.
samarensis VIII, 5.
scurrula XI, 1.
secundiflorus I, 1.
seriatus VIII, 2.
sessiliflorus IX, 2.
sessilifolius VII, 16a.
shawianus X, 1.
similis XI, 1.
sphaenoideus XI, 1.
sphaerocarpus V, 1.
sphaerocephalus V, 1.
sphaeroideus XI, 1.
spicifer IX, 1.
spraguei VII, 4.
subalternifolius I, 1.
subglobosus V, 1.
subsessilis V, 11.

Loranthus—continued.
subumbellatus V, 1.
surigaoensis V, 2.
tenuis IX, 8.
terminaliflorus I, 6.
tetranthus VI, 2.
tribracteatus V, 1.
urdanetensis VII, 3.
venosus X, 1.
viridiflorus V, 1.
viridis I, 16.
wenzelii VII, 19.
williamsii VI, 1.
worcesteri V, 9.
zimmermanni X, 1.
Macrosolen acunae V, 6.
ampullaceus V, 1.
angulatus V, 10.
bellus V, 5.
carinatulus V, 1.
cochinchinensis V, 1.
curtiflorus V, 3.
demesae V, 4.
geminatus V, 8.
globosus V, 1.
mcgregorii V, 7.
oleoides V, 1.
pallens V, 1.
patulus V, 1.
sphaerocarpus V, 1.
subsessilis V, 11.
subumbellatus V, 1.
surigaoensis V, 2.
tribracteatus V, 1.
viridiflorus V, 1.
worcesteri V, 9.
Meiena axillaris X, 1.
Notothixos curranii XVI, 1.
l(e)iophyllus XVI, 3.
philippensis XVI, 3.
sulfureus XVI, 2.
sulphureus XVI, 2.
Phoenicanthemum pentapetalum IX, 1.
Phrygilanthus obtusifolius XIII, 1.
Pseudixus japonicus XV, 1.
Rhizanthemum celebicum VII, 12.
forsteni VII, 12.
Scurrula buddleioides XI, 1.
chrysanthoides XI, 3.
fasciculata VII, 15.
ferruginea XI, 3.
fusca XI, 1.
haenkeana VII, 1.
ignea XI, 1.
junghuhnii XI, 2.
laevigata XI, 1.
malifolia VII, 1.
parasitica XI, 1.
pentandra X, 1.
philipp(in)ensis XI, 2.
roxburghii XI, 1.
rufidula XI, 1.
similis XI, 1.
venosa X, 1.
Stemmatophyllum acutum VII, 3.
cumingii VII, 15.
luzonense VII, 6.
nodosum VII, 17.
sessilifolium VII, 16a.
Taxillus estipitatus XII, 1.
Thaumasianthus amplifolia IV, 1.
ovatibractea IV, 2.
Tristerix viridiflorus V, 1.
Viscum angulatum XVII, 2.
articulatum XVII, 2.
compressum XVII, 2.
cumingianum XIV, 1.
dichotomum XVII, 2.
flexuosum XVII, 2.
heyneanum XVII, 1.
japonicum XV, 1.
loranthi XVII, 3.
monillifolium XVII, 2.
navicellatum XVII, 1.
obtusatum XVII, 1.
opuntia XV, 1.
opuntioides XVII, 2.
orientale XVII, 1.
ovalifolium XVII, 1.
pamatonis XVII, 1.
roxburghianum XVII, 1.
spicatum XIV, 1.
verticillatum XVII, 1.

ILLUSTRATIONS

[All branches with leaves and flowers are one-half natural size; other parts, natural size.]

PLATE 1

FIGS. 1 and 2. *Amylotheca amplexicaulis* Danser sp. nov.
3 and 4. *Macrosolen bellus* Danser sp. nov.
5 to 7. *Amyema mosea* Danser sp. nov.
FIG. 8. *Ginalloa ovata* Danser sp. nov.

PLATE 2

FIG. 1. *Ginalloa angustifolia* (Merrill) Danser.
FIGS. 2 to 5. *Amyema aquilonia* Danser sp. nov.
6 to 10. *Dicymanthes suluana* Danser sp. nov.

PLATE 1.

PLATE 2.